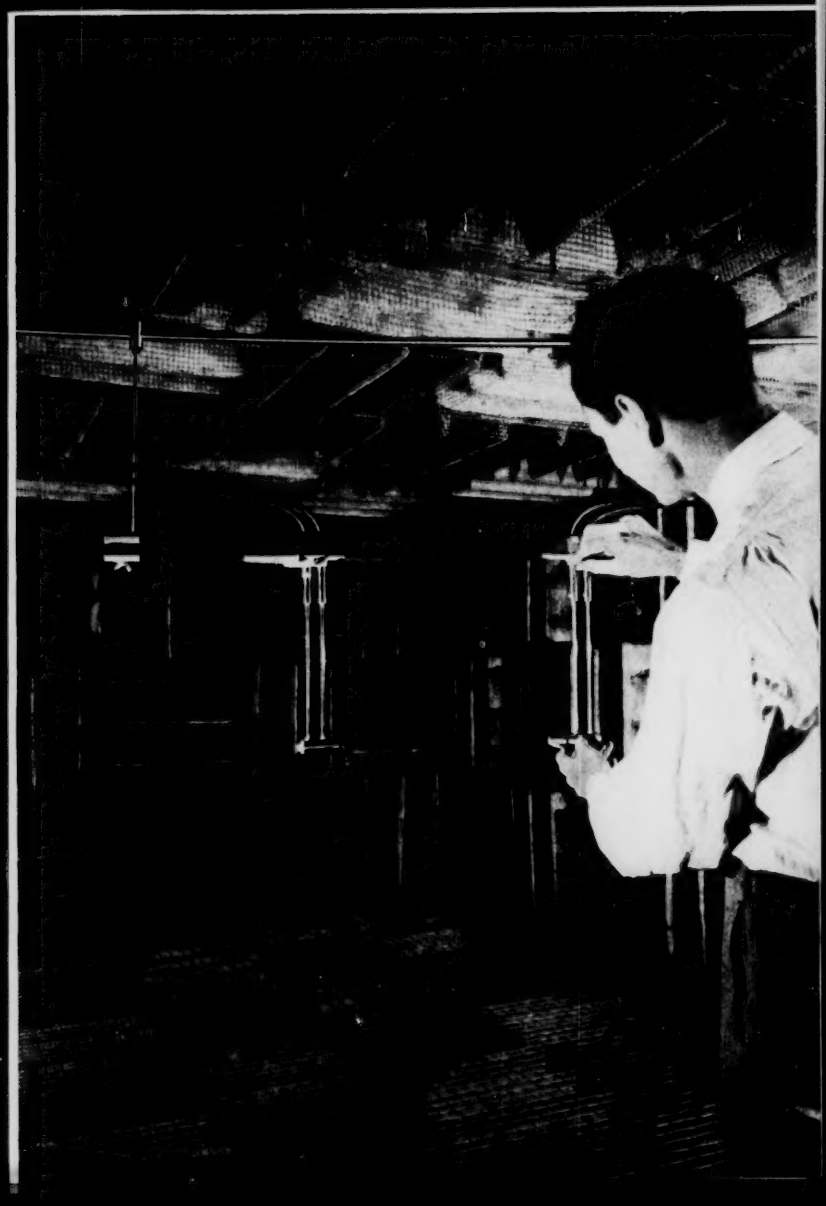
STANDARDIZATION

Formerly Industrial Standardization

News Magazine of the American Standards Association, Incorporated



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Readers Write

Foundry Equipment Manufacturers Assn
Cleveland, Ohio

Gentlemen: Will you tell me the approximate percentage of manufacturers that you would consider logical to have in agreement on certain points of standardization? I realize that it is a difficult matter to get everybody in accord. At the same time, there probably is some sort of factor or rule of thumb which your experience has indicated as desirable. Anything further you can give me in this regard, I would very much appreciate.

ARTHUR J. TUSCANY
Executive Secretary

• • Mr Tuscany raises a very important question concerning the degree of support the ASA requires a standard to have in order to receive approval as American Standard. According to ASA procedure, an American Standard must be supported by "a consensus of those substantially concerned with its scope and provisions." Furthermore, in determining whether a national consensus has been reached "the basic test to be applied in all cases is the fact of the assent, affirmatively expressed, of the groups having substantial concern with the standards."

The several methods by which a standard may become an American Standard are the Sectional Committee Method, the Existing Standards Method, and the General Acceptance Method. There is also a Proprietary Method applicable only to revisions of American Standards.

The requirement of a consensus does not imply requirement of a unanimous vote of all parties concerned. If a proposed American Standard is submitted to the ASA with an indication of dissent on the part of one or more interested groups, the importance of this dissent is carefully weighed against the assent of the majority. For example, in one case a negative vote cast in an ASA sectional committee may be set aside because the group that was overruled has a minor interest, whereas in another case a negative vote may cause the proposal to be sent back to the committee for further consideration, because the vote came from a major interest. All of this is a matter of careful and impartial judgment by the ASA, which always wants to have the greatest possible degree of assurance that everybody concerned has had an opportunity to express his opinion, and that all objections raised have been given due and fair consideration.

The ASA is asked to pass judgment on cases of widely varying nature which makes it impossible to lay down a general rule making ASA approval dependent on a definite percentage of assent of those interested. The consensus principle is a flexible one and has worked out in a very satisfactory manner.

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More than 2100 companies hold membership either directly or by group arrangement through their respective trade associations

STANDARDIZATION

formerly **Industrial Standardization**

In Two Parts—Part 2 of the February, 1949 issue

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of Industrial Standardization

American Standards Association, Incorporated

70 East 45th Street New York 17, N. Y.

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ABBREVIATIONS

AGA	American Gas Association
AIEE	American Institute of Electrical Engineers
ASA	American Standards Association
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
BCCC	Building Code Correlating Committee
BOCA	Building Officials' Conference of America
CGC	Consumer Goods Committee
CMC	Company Member Conference
HHFA	Housing and Home Finance Agency
HTSC	Highway Traffic Standards Committee
IEC	International Electrotechnical Commission
IEE	Institution of Electrical Engineers (Great Britain)
IES	Illuminating Engineering Society
MSCC	Mining Standardization Correlating Committee
NBS	National Bureau of Standards
NCRC	National Consumer-Retailer Council
SCCC	Safety Code Correlating Committee
SCPI	Structural Clay Products Institute
UBCA	Uniform Building Code Association
USSR	Union of Soviet Socialist Republics

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Vol. 20 No. 2 **Standardization** February 1949

Published Monthly by AMERICAN STANDARDS ASSOCIATION INCORPORATED 70 E. 45th St., N. Y. 17

This publication is indexed in the Engineering Index and the Industrial Arts Index.

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ASA
Reg. U. S. Pat. Off.

Ruth E. Mason, Editor Janet Meldon, Assistant Editor

Advertising Representatives—Woolf & Elofson, 70 E. 45th St., New York 17, N.Y.

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

Single copy, 35¢. $4.00 per year (foreign $5.00). Schools and libraries $3.00 (foreign $4.00). Re-entered as second class matter January 11, 1949, at the post office at New York, N. Y., under the Act of March 3, 1879.

Readers Write

Continued

Error in Report On ISO Projects

Automobile Manufacturers Association
Detroit, Michigan

Gentlemen: We desire to call to your attention an error on page 200 of the December issue of INDUSTRIAL STANDARDIZATION, in the report bearing the name of the late Mr L. F. Adams.

The statement to which we refer appears in the only complete paragraph in column two on this page. It indicates that among eight ISO projects which the United States has been requested to sponsor, one of them is Automobiles. This is incorrect, to the best of our knowledge, because the project ISO 22, Automobiles, was assigned to the French organization and at no time was the question of American sponsorship raised.

The statement quite clearly refers to the fact that Americans are participating on a temporary basis in the work of ISO 22, with a French secretariat.

WILLIAM J. CRONIN
Managing Director

• • Mr Cronin's statement is correct in that the secretariat for the international project ISO 22, Automobiles, was assigned to the French national standards association, the Association Française de Normalisation. American industry has been asked, through the American Standards Association, whether it is interested in taking part in the work of this committee. A representative of the American groups attended the meetings of the ISO technical committee on this subject which were held at the Hague in October 1948. Consideration is now being given to future participation in the future work of the committee.

Does "M" Mean "Thousand" or "Million"?

Pacific Electric Manufacturing Corp
San Francisco, California

Gentlemen: With respect to the inquiry of Mr Harrison (INDUSTRIAL STANDARDIZATION, May-June 1948) as to the distinction between "M" and "K" for "thousand," I would draw attention to the fact that it is easy to misread the letter "M" to indicate "million."

JOSEPH S. THOMPSON
President

Our Front Cover

Setting up a pair of "Electroacoustical Transducers" to obtain their "Free Field Voltage Response" by the application of the "Electroacoustical Reciprocity Theorem." Picture courtesy of Bell Telephone Laboratories. See page 35, Proposed American Standard Acoustical Terminology.

SPEED LIMIT 50

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Uniform Traffic Devices *For Safer Driving*

Motor travel will be safer and more comfortable if each state will apply the the techniques for uniformity in traffic control devices recommended by the new Manual. The pressure of public opinion can be a deciding factor in bringing about national adoption of these standards.

By William G. Eliot, 3d

Secretary, Joint Committee on Uniform Traffic Control Devices

HIGHWAY traffic control is no static science. It must change to meet every advance in the design of highways and vehicles, and it must advance independently through experience and research. The Manual on Uniform Traffic Control Devices, approved as an American Standard under the Existing Standards procedure and published by the U.S. Public Roads Administration, is the latest—though certainly not the last—word in standardization of traffic control devices.

The significance of this new Manual is effectively set forth in its Introduction, as follows:

"Uniformity in traffic laws and regulations was emphatically urged by the President's Highway Safety Conference held in Washington May 8-10, 1946, and is widely recognized as one of the most important objectives in the program to reduce accidents and facilitate the orderly flow of traffic. This *Manual on Uniform Traffic Control Devices for Streets and Highways* is an essential part of this uniformity plan, and its adoption was specifically recommended by the President's Conference.

"Approved legislative standards for States and cities are available in Act V of the Uniform Vehicle Code—*the Uniform Act Regulating Traffic on Highways*—and in the *Model Traffic Ordinance*, respectively. Both the Code and the Ordinance require the placing of signs or other traffic control devices to make some of their provisions effective, and both define the legal meaning of certain devices. The Code directs the State authorities to adopt a manual for a uniform system of traffic control devices, and the Ordinance requires devices under municipal jurisdiction to conform.

"The Federal-aid Highway Act of 1944 also recognizes the need for approved standards for traffic control devices, and as to highways receiving Federal aid authorizes the Commissioner of Public Roads to require that the devices conform to such standards."

Charles Phelps Cushing

New York's Fifth Avenue at 34th Street around 1920. Height of this signal exceeds today's standard which specifies 8 to 10 feet above the sidewalk.

The new Manual, though basically a revision of an earlier manual approved in 1935, is actually an entirely new volume, completely reorganized, rewritten, and much more copiously illustrated. Standards for traffic control devices have been freely modified and improved in the light of experience, but nowhere in such a manner as to cause confusing conflicts with previous practices.

National standardization of traffic control devices began more than 20 years ago, when interstate motor traffic had reached such proportions as to demand a countrywide network of uniformly marked highway routes. The *Manual and Specifications for the Manufacture, Display, and Erection of U.S. Standard Road Markers and Signs*, issued in 1927 by the Joint Board on Interstate Highways, was the earliest national standard for traffic control devices, though it dealt wholly with road signs. The first *Manual on Uniform Traffic Control Devices*, prepared by a joint

committee of the American Association of State Highway Officials and the National Conference on Street and Highway Safety, was approved and published in 1935, by both sponsoring agencies and by the American Standards Association.[2]

The Joint Committee has been reactivated from time to time for the purpose of revising the Manual, and in 1942 it was enlarged to include equal representation from the Institute of Traffic Engineers. In that year, a "War Emergency Edition" of the Manual was issued, featuring standards for wartime traffic control, especially for "blackout" conditions.

Work on the current edition of the Manual began as early as 1944, in anticipation of postwar needs. Every effort was made to incorporate the latest developments in control techniques and to make the Manual representative of prevailing authoritative opinion. Numerous questionnaires were circulated to highway officials and traffic engineers. Manufacturers, especially of traffic signals, were consulted, to assure that standards of design and operation were consistent with production techniques.

Uniformity in traffic control requires that standards shall not change suddenly nor inconsistently. The ordinary highway user, therefore, will hardly be aware of the changes called for in the new Manual. Sign messages and symbols may seem a little plainer, pavement markings may appear more logical, and directional indications may be easier to follow. New efficiency in traffic signals will not alter their appearance or their meanings. Nevertheless, motor travel will be safer and more comfortable in many small ways that add up to the progress.

To the traffic engineer, the Manual is not only a compendium of standards for the design, application, and operation of traffic control devices; it is also a storehouse of advice on those details which, by their nature, cannot be arbitrarily prescribed. The choice between a "Stop" sign and a traffic signal, for example, or between "fixed-time" and "traffic-actuated" signals, must often depend on the best judgment of the engineer, aided by the general principles set forth in the Manual.

The new standards in some instances necessarily represent compromises based on opinions. But even educated opinions cannot take the place of facts derived from scientific research, and to this end the Joint Committee has set up a continuing subcommittee on research to encourage and coordinate investigations by any qualified agencies in its special field. Future Manuals can therefore be expected to be even more specific and authoritative. Already the Highway Research Board has undertaken a study of the design of pavement center lines and "no-passing zone" markings.

If motorists are to travel freely and safely across State lines there must be substantial uniformity in traffic control devices everywhere. In our country, each State is responsible for the control of traffic within its boundaries, and only the high degree of uniformity that has been achieved by voluntary cooperation prevents a confusion that might be truly appalling. While the Public Roads Administration can exert some authority over control devices on Federal-aid roads, national uniformity depends, in the last analysis, on the pressure of public opinion. The Manual only provides standards on which such uniformity can rest. Where it has not been completely accepted, the cause can be found in deep-seated differences of opinion as to control technique, in supposed local differences in needs, or even in ignorance that standards exist. The new Manual, with the resulting publicity, is expected to overcome some of these resistances.

It is the intent of its sponsors that the Manual will be reviewed and revised periodically, at intervals dependent on changing conditions, advancing knowledge, and the needs of traffic officials.

Thomas H. MacDonald, Commissioner of Public Roads, has approved the Manual as implementation of Section 12 of the Federal-Aid Highway Act of 1944, which provides that signs, signals, and markings on roads and streets constructed with Federal aid shall be subject to approval of the state highway departments with concurrence of the Public Roads Administration. The law specifically directs the Commissioner of Public Roads to concur only in those installations that will promote the safe and efficient ultization of the highways.

Some of the more significant changes made in the new Manual are the following:

1. All warning signs (with such special exceptions as railroad crossing signs) are to be "diamond"-shaped. Formerly some of these were square, for reasons that were perhaps logical but certainly never understood or appreciated by the average driver.
2. A new symbol sign is provided for advance notice of a route turn at an intersection. An Arrow with its shaft extending upward vertically then bent to left or right replaces the former "L" or "R" enclosed in a small shield outline.
3. A new "advisory speed" sign, for use with any warning sign, suggests a suitable speed—not a legal speed limit—through a hazardous zone.
4. The growing need for larger signs is recognized, and some minimum sizes have been increased. The "Stop" sign, for example, is now 30 instead of 24 inches across.
5. White lettering on a black background is made permissible for large directional and information signs. The whole lettering has some advantages in legibility, but a black background seriously weakens the "target value" of a small sign.
6. New specifications are provided for center line and "no-passing zone" pavement markings. Lack of uniformity in these markings has been conspicuous.
7. "Warrants" for the justification of traffic signal installations have been revised, recognizing the differing demands of rural and urban traffic.
8. It is specified that at urban intersections at least two signal faces, and at rural intersections at least one, shall be visible to traffic on each approach to the intersection, but the location of traffic signals (near side, far side, or overhead) is optional, provided that they are clearly visible.
9. The relative advantages of "fixed-time" and traffic-actuated" signals are discussed at length, as an aid to the choice of equipment for any particular situation.
10. Finally, the new Manual includes a detailed treatment of "traffic islands," necessarily general in nature, but including some minimum standards and many suggestive photographs of existing installations.

The American Standard Manual on Uniform Traffic Control Devices, D6.1-1948, may be obtained from the ASA, 70 East 45 Street, New York 17, N.Y., or from the Superintendent of Documents, Government Printing Office, Washington, D.C., at 50 cents per copy.

Accuracy of Cooking Utensils Subject of Committee's Study

WHY are muffins sometimes soggy and heavy or cakes and cookies light in color and unappetizing? This question was given serious consideration at a conference of home economics representatives, food companies, and manufacturers of baking pans, measuring cups, and measuring spoons at the offices of the American Standards Association December 2.

The conference was called at the request of the American Home Economics Association which had found a variation in the accuracy of measuring cups and spoons and a wide variety of sizes in cooking and baking utensils. Miss Elizabeth Sweeney, editor of household equipment for *McCall's Magazine*, is chairman of the equipment committee of the American Home Economics Association's Home Economics in Business Department, which made a check of standards for measuring cups and spoons and a study of 18 measuring cups and 10 sets of measuring spoons on the retail market.

The AHEA study covered a period of two years and was aimed particularly at determining how to establish standard terminology, standard measures, and standard markings of baking and top-of-range utensils. Every material was studied, including glass, metal, porcelain, enamel, and tin. Utensil manufacturers, home service groups, the food industry, magazine groups, and consumers were all consulted.

The AHEA committee found that there are now standards, adopted by the National Bureau of Standards in 1926, that can be used in checking the sizes of measuring cups and spoons. These provide the following measurements:

1 cup	236.6	cubic centimeters
¾ cup	177.4	" "
⅔ "	157.7	" "
½ "	118.3	" "
⅓ "	78.9	" "
¼ "	59.2	" "
1 tablespoon	14.78	" "
1 teaspoon	4.93	" "
½ "	2.46	" "
¼ "	1.23	" "

The committee pointed out that different standards have been adopted by both the American Medical Association and the U. S. Pharmacopoeia.

The AHEA study showed that, regardless of the material used, the measuring cups and spoons showed greater variations from the standard than should be permitted, in their opinion. Measuring spoons, for example, showed inaccuracies of at least 10 percent, and one ½-teaspoon showed an error of minus 40.2 percent.

Ready-mix Recipes Affected

Representatives present at the December 2 conference explained that these variations have been particularly troublesome to those who are preparing formulas and recipes for ready-mixes, and recipes for cook books. Even seemingly small differences in measuring cups and spoons have been known to cause baking failures, a serious matter in the case of a mix which depends for its volume of sales on customer acceptance and satisfaction. It is equally important to the woman who follows her cookbook recipe using what she believes to be a standard measuring cup or spoon. In her mind the very word "measurement" is associated with precision and she, therefore, relies on her "measuring" utensils as being of standard accuracy. To show what can happen, Miss Sweeney and Miss Ellen-Ann Dunham of the American Home Economics Association, had brought to the conference two batches of muffins. For one batch, three teaspoons of baking powder had been measured with a spoon tested and known to be in line with the standard teaspoon adopted by the National Bureau of Standards. These muffins were light and tender. The others had been prepared using 3 teaspoons of baking powder measured with a spoon that had been tested and found to be 32.2 percent smaller than the standards, providing only two teaspoons of baking powder instead of three. These muffins were tight and heavy, a certain indication of too small an amount of baking powder.

According to one representative at the conference, other domestic problems may result from inaccurate measuring cups and spoons. A father reported that when he uses one measuring cup to make the baby's formula, his baby sleeps well; when a different measuring cup is used, the baby cries with indigestion.

In the case of baking and cooking utensils, the AHEA committee had found a great variety of sizes. One's cookbook, it was reported, called for baking tins of 18 different sizes, a variety which it is unlikely any woman would have in her kitchen. Because of variations in the method of measuring the size, a pan known as an 8½-inch pan in one make may be the same as a pan known as a 9-inch pan in another make. These variations also have an effect on baking results, since a ready-mix recipe prepared for an 8½-inch pan may bake either too fast or too slow if baked in a pan either larger or smaller than the one called for in the recipe.

To solve this problem, the AHEA committee recommended a series of definitions for different types and sizes of baking pans and cooking pans for use on the top of the stove.

The recommendations of the AHEA committee, referred to the conference for consideration, covered the method of taking the measurements, stating dimensions, marking baking utensils, and a series of sizes to be considered standard for recipe development.

As a result of discussions at the conference, a drafting committee was appointed to study these recommendations with particular consideration of the need for tolerances on the sizes of utensils covered by these studies. It was pointed out by manufacturing representatives that important questions of cost enter into the control of sizes and it may be difficult to keep such low-cost items as measuring spoons within a very small tolerance without an undue rise of cost and resulting rise in the price to the consumer.

The drafting committee had its first meeting January 25.

How New Industry Meets Customers' Needs

By Frank J. Groten

General Chairman, Plastic Film Sheeting and Coating Fabrics Division, The Society of the Plastics Industry

Plastics industry has organized far-reaching program of standard tests and specifications to provide plastic materials for various types of service—from raincoats to baby pants. Such properties as pliability, tear resistance, lightfastness, stain resistance, toxicity are among those for which tests are now being actively studied.

Mr Groten is Technical Director of the Firestone Plastics Company, Pottstown, Pa., and is serving as General Chairman of the Plastic Film Sheeting and Coating Fabrics Division of the Society of the Plastics Industry.

THE Society of the Plastics Industry, at its Spring Conference of 1946, held in New York City, announced the formation of a division to foster the development of standard methods for evaluating cast and calendered films, supported and unsupported sheets, and coated fabrics. The request for this division emanated from the consumer industry, which at that time was receiving samples of raincoats, window curtains, shower curtains, baby pants, bowl covers, etc. from various sources, and had no test methods at their disposal to determine whether or not the quality of the product submitted was commensurate with its end use.

The need for standard test methods, although urgent at that time, is acute today, as witness our present dilemma with reference to impending laws dealing with flammability of wearing apparel. Some of the bills before Congress state, in a general way, that unsafe materials are not to be sold, but do not state the method of test, nor do they have adequate substantiation of limiting values, and lack satisfactory terminology.

Bakelite Corp.

Plastic raincoats, now receiving wide consumer acceptance, must be waterproof, pliable, and tear resistant.

An initial survey disclosed that several technical societies had many tests in various stages of development, which might be adopted in whole or modified to suitably serve as test methods for these plastic products. Duplication of effort was to be avoided at all costs, and time was to be conserved. Upon contacting the various technical societies, it was found that they were most anxious to render all possible assistance. Thus, a steering committee was appointed to draw up, and serve in an advisory capacity to, a technical committee. Frank J. Groten, of the Firestone Plastics Company, was named chairman of the Steering Committee, with Dr Gordon M. Kline, of the National Bureau of Standards, Dr Robert Burns, representing the American Society for Testing Materials, Charles Dorn, representing the American Association of Textile Chemists and Colorists, deForest Lott, representing the Pyroxylin and Resin Coaters Institute, Joseph L. Haas, representing the Rubber Manufacturers Association, and R. T. Bingham, of the Technical Association of the Pulp and Paper Industry, as committee members.

A list of properties for which test methods were needed was made. Tests which were related were grouped into ten categories and a chairman appointed for each. The chairman of each of these groups chose his committee so as to best represent the industry, but at the same time with an eye toward adequate facilities and geographic location of members to facilitate committee meetings.

Group I was designated to study low temperature flexibility and cold crack, pliability, fatigue, and grease resistance. J. W. Sinner, of the Glenn L. Martin Company, was named chairman of this committee. After reviewing a wide variety of cold temperature tests it was decided that the procedure used by one large vinyl upholstery producer appeared

of greatest interest. Members of this committee embarked on a series of round-robin tests, using this method, to determine the ability to duplicate results in various laboratories. At the present time this phase of the work is continuing.

Group I has done some work on stiffness testing, and data and test information are now being collected. Fatigue studies have been considered, but work along this line is incomplete.

Group II, under the chairmanship of David S. Plumb, of the Monsanto Chemical Company, was allocated studies on abrasion resistance, tear resistance, tensile strength, hardness, and bursting strength. This committee feels that its work on tensile and tear strength is essentially complete. The tentative recommendation for tensile testing is based upon ASTM procedure D412-41, with certain modifications. Use of a one-inch wide tensile specimen is recommended over the dumb-bell shaped ASTM specimen. The recommended procedure is essentially the ASTM test for vulcanized rubber, which calls for a jaw separation rate of 20 inches per minute.

Recommend Use of Graves Test for Tear Resistance

A great deal of work and consideration was given to tear testing. It was the conclusion of this committee that, of six methods given consideration, the Elmendorf was possibly one of the poorest for calendered plastics, and that the Graves tear test was one of the best. A tentative recommendation was made that tear determinations based on the Graves Die be standardized upon.

Abrasion resistance tests are currently being given consideration, although it was decided by the committee that abrasion was not a serious factor on items such as 4-mil film, or the heavier gauge vinyl artificial leather, except for printed products. While the Taber Abraser is one of the more widely used instruments for the determination of abrasion resistance, it was felt that in view of divergent data more complete consideration should be given factors involved in the use of this instrument.

Marring of packaging materials and the adaptability to plastic materials of an edge-wear test are being given consideration.

Hardness testing was deemed unworthy of consideration by a committee concerned with films and sheetings.

Group III was assigned the investigation of accelerated agings, lightfastness, and resistance to weathering. M. R. Radcliffe, of the O'Sullivan Rubber Company, was named chairman of this committee. Questionnaires were circulated to 250 members of the plastics industry in an attempt to get a cross section of the test methods being used within the scope of this committee's functions. Round-robin testing is now being conducted in Fade-Ometers in various collaborating laboratories, under specific recommendations of the committee. When round-robin Fade-Ometer tests are reported, a correlation will be attained with results obtained from Florida exposure.

Bakelite Corp.

Tensile strength, hardness, bursting strength of plastic materials are tested by methods similar to those for rubber; stiffness and fatigue are being studied.

Oxygen bomb aging tests were assigned to various committee members and reports will be made on the results when completed.

Group IV was to investigate plasticizer migration, volatilization and extraction, color transfer, cleaning methods, and stain resistance. Robert Van Tuyle, of Emery Industries, has recently been named chairman of this committee. Group IV has studied various plasticizer migration tests. These are allied to what is sometimes known in the industry as varnish lift. In order to secure a uniform material for testing against, the use of photographic film was suggested, and this is being investigated at the present time.

Plasticizer volatility tests in use are being checked into. The greatest problem confronting the committee, in this case, is the standardization of conditions, particularly with regard to rate of air flow and recirculation. Tentatively, an Abderhalden oven has been recommended, but more investigations along this line need be made before this is promulgated as a standard procedure.

AATCC Crockmeter Recommended For Crocking Test

Group IV has decided that crocking can be satisfactorily evaluated using the Crockmeter of the American Association of Textile Chemists and Colorists. It is their recommendation that this be adopted as standard practice. Stain resistance and color migration (bleeding) have been discussed, but not investigated as yet. The problem concerned with cleaning methods was assigned to AATCC because of their previous experience along those lines.

Group V, under the chairmanship of F. C. Dulmage, of the Dow Chemical Company, received as its function the study of resistance to mildew, resistance to insects, toxicity, odor, and resistance to perspiration. This committee was divided into subgroups for various studies. One subgroup has set about writing up test methods for toxicity and means of interpreting them. The aid of industrial toxicologists was enlisted for this work. Mildew resistance was assigned to another subgroup. Naval Ordnance Laboratories have done a great deal of work on this subject, and the committee hopes to draw largely on their findings. Odor and taste tests are being

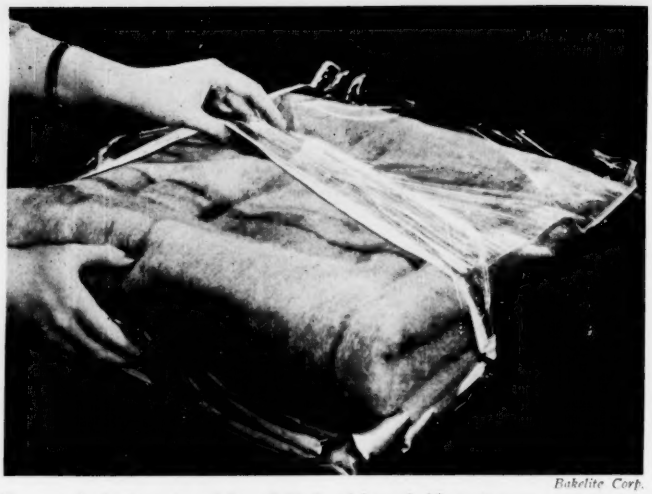
checked into by another subgroup of this committee. Perspiration tests are currently being checked and a report is due shortly on the findings.

Group VI is organized with T. A. Lancaster, of the Plastic Film Corporation, as chairman, to study blocking, delamination, surface slip, adhesion to printing inks, seam strength, and hydrostatic resistance. It has been the recommendation of this committee that seam strength tests be based upon tensile measurements to be conducted in such a manner as recommended by Group II in its final report. Printing ink adhesion tests are scheduled for trial in various collaborating laboratories using the Taber Abraser.

Group VII was assigned flammability testing and water vapor and gas transmission resistance. This committee is under the chairmanship of J. R. Blegen, of the Firestone Plastics Company. Flammability studies have been given complete priority over moisture vapor transmission studies because of the very great urgency of the former. Consideration of every known testing method for determining flammability was made. It was possible to draw upon the findings of the AATCC Flammability Committee, under the chairmanship of Dr H. E. Hager, of the General Dyestuff Corporation, which has been functioning since 1943. It was found, however, that the AATCC Flammability Tester was not entirely suitable for measuring the burning rate of plastic materials, nor was the California Flammability Tester. A program of round-robin testing, under various conditions, and a study of the flammability of plastic materials, from colored motion pictures, indicated that a new device for flammability measurements was needed. A crude model embodying various principles believed pertinent was made and its behavior considered by the committee. It was decided that a workable commercial model, based on these principles, be made. Blueprints of this tester have just been completed and the first test model will be constructed as soon as possible.

Questionnaire Shows Variations In Dimensional Stability Tests

Group VIII was assigned the problem of dimensional stability, W. H. Aiken, of the Goodyear Tire and Rubber Company, chairman of this committee, has just recently compiled answers received in reply to a questionnaire submitted to the industry at large. From the replies obtained, it is obvious that a very wide range of time and conditions are now being employed in various laboratories to ascertain dimensional stability. Mr Aiken and his committee will choose what appears to be a logical and simply conducted test procedure and will proceed with round-robin testing on this method.



Bakelite Corp.

Covers of plastic material for all kinds of household equipment, coming into wider use, should be pliable, waterproof, and resistant to tearing.

Group IX, under the chairmanship of M. S. Moulten, of the Goodrich Chemical Company, has as its problem electrical properties. Mr Moulten feels that ASTM specifications adequately cover most of the necessary electrical test procedures. Electronic sealing, however, is a problem not adequately covered by existing testing specifications. This group will attempt to develop a method which will evaluate the electronic heat sealability on a wide range of commercial machines.

Group X, with R. S. Hallas, of the Bakelite Corporation, as its chairman, has nomenclature as its subject. This committee is attempting to standardize terminology used in the plastics industry. Agencies such as TAPPI, The Packaging Institute, and ASTM committees are being consulted for any ideas or work which may have been conducted by them.

If each of the ten committees develops and agrees upon a method which it believes should be adopted as standard practice, it will refer the recommended method to the technical society primarily interested, such as the American Society for Testing Materials or the American Association of Textile Chemists and Colorists. Upon the approval of the method, it will be issued by the society involved. The Vinyl Processors Division of the Society of the Plastics Industry will use these approved methods to set minimum standards on consumer products, and if 65 percent or more of the dollar volume of the plastics industry concurs, these minimum standards will be submitted to the National Bureau of Standards for approval. The companies that elect to do so may then tag their merchandise as meeting these minimum standards.

Consider Chemical Committee And Work In Aeronautics

Two preliminary meetings to consider proposals that may have a bearing on the future development of the standardization program were held during the past month. One was a meeting of representatives of chemical organizations to discuss the possibility of organizing a Chemical Industry Correlating Committee, within the ASA. The other was a meeting of representatives of organizations interested in aeronautics to consider participation in the work of a committee being organized by the International Organization for Standardization on standards in the aeronautical field. Both questions are being given further consideration by the groups concerned.

49 National Standards for Motion Pictures Help Control Dimensions and Quality

THE recent approval of several American Standards for use in controlling the quality of sound and picture reproduction brings to 49 the number of new and revised national standards made available to the motion picture industry since January 1946. Committees of the Motion Picture Research Council and the Society of Motion Picture Engineers have worked on the preparation of these standards with other organizations as members of the Sectional Committee on Motion Pictures, Z22. This committee, organized under the procedure of the American Standards Association, is sponsored by the Society of Motion Picture Engineers.

Most of the work on this large number of completed standards, which include dimensions of paper, film, and equipment, positions of emulsions and sound records in film, projectors, and cameras, nomenclature, and methods of testing, is the result of an expanded program started in 1946. The object was to review all motion picture standards approved before the war and to reappraise in terms of peacetime needs the temporary war standards developed for the use of the military services. The majority of these early standards have already been revised or are now under revision.

The most recent additions to the up-to-date list include specifications for several important types of films used in testing, dimensions of screens used in theatres, and a type of film used in studio production. They cover the following:

Theater Projection Screens, Z22.29-1948—This 1948 revision of standard dimensions for theatre screens establishes overall screen dimensions in addition to the minimum effective picture size, and includes border dimensions with more specific location of grommets. Screens wider than 30 feet have not been included since they are made to order and because of keystoning do not usually have the standard height-to-width ratio of 3 to 4.

16-Mm Buzz Track Test Film, Z22.57-1947—One of the important groups of test films for which national standards have been prepared is the film which checks the alignment of projection equipment by buzzing when run through an imperfect machine. The American War Standard edition of 1944 has been revised in this 1947 edition. The dimensions remain exactly the same as those in the American War Standard, Z52.10-1944. Performance of the film has been improved by making both the 1000-cycle and 300-cycle buzz signals an integral part of the center opaque strip. They had each been separated from the center strip by a clear area 0.002 inch wide, but it was found that films made that way give a somewhat less critical indication of lateral placement of the reproducer scanning slit.

35-Mm Theatre Sound Test Film, Z22.60-1948—This recently approved American Standard describes in a general way a familiar Academy Test Reel that provides samples of good sound recording for use in checking the performance of new films. It describes the test film in a general way without specifying detailed requirements, either qualitative or quantitative. This is an apparent departure from accepted standardization practice but is practical because it includes a statement of this film's purpose and a description of the several types of typical samples of sound in the release prints.

35-Mm Sound Focusing Test Film (9000-Cycle), Z22.62-1948—This 9000-cycle film is an original recording intended for use by 35-mm reproducer manufacturers or theatre equipment maintenance shops for focusing sound optical systems. It provides a critical test in these applications but is not recommended for use in theatres because theatre amplifiers normally have low-pass filters that cut-off somewhat below 9000 cycles.

35-Mm Scanning Beam Test Film (Service Type), Z22.65-1948—This standard describes what is known as the "snake track" used in the theater for checking whether the light beam through the sound track of a film is uniform. In service it is used as a loop, joined preferably with a butt splice held together with scotch tape. An 0.007 inch wide, 1000 cycle track moves across the 0.084 inch standard scanned area in 8 feet of film or approximately 5½ seconds. Any nonuniformity of illumination will appear as cyclic variations of output power level.

35-Mm Scanning Beam Test Film (Laboratory Type) Z22.66-1948—This laboratory type of scanning beam film is a more precise measuring tool than the "snake track" and is used by manufacturers of theater and studio sound reproducers for adjusting new equipment or as a final check of new sound installations. It has seventeen successive individual 1000 cycle sound tracks, each 0.007 inch wide and about 12 feet long, equally spaced across an area slightly wider than the standard soundtrack scanned area covered in the American Standard Sound Records and Scanning Area of 35-Mm Sound Motion Picture Prints, Z22.40-1946.

35-Mm Balancing Film (1000 Cycle), Z22.67-1948—The output power level from all soundheads in any theater must be balanced so that normal release prints will reproduce at proper volume with a single fader setting. This film provides a standard reference signal required for balancing power level output from standard sound reproducers but is not intended for use in balancing the outputs from the two halves of push-pull reproducer systems.

Double-Width Push-Pull Sound Track, Z22.69-1948 and Z22.70-1948—Double-width push-pull sound tracks, sometimes called "200-mil push-pull," that are now in commercial use follow two "standards." One is the Normal Centerline Type, Z22.69, wherein the half of the track nearest the perforations will play back on a reproducer intended for track in the normal 35-mm release print position (American Standard Sound Records and Scanning Area of 35-Mm Sound Motion Picture Prints, Z22.40-1946). The other is the offset Centerline Type, Z22.70, which has its centerline 0.021 inch nearer the center of the film and will not play back on conventional theater equipment. These double-width tracks are now used only in studio production prior to re-recording the final release negative.

Research for the *Motion Picture Industry*

TO engage in engineering development and research, to find solutions to common problems, to develop and improve equipment and methods, to promote standardization and the interchange of ideas and information, and to act as a liaison between studios and suppliers—this was the tremendous task assigned to the Motion Picture Research Council at the time of its establishment in October 1947. Although in operation only a little over a year, the Council is pursuing an active program in applied research which should bring great benefits to the motion picture industry.

The staff is already at work analyzing new ideas and new inventions which have been submitted for possible application to the motion picture industry, and is examining equipment and materials developed by other industries for possible adaptation. During the past year, such items as three-dimensional systems, television patents, special cameras, color systems, aerial and underwater photography, universal focus lenses, magnetic recording, "liquid-envelope" materials, static eliminators, wall coverings, shellac substitutes, nylon products, and molded screens were taken under advisement.

Standardization is being promoted through the establishment of Research Council Practices and the recommendation of American Standards wherever applicable.

The purpose of a Research Council Practice is to establish a standard procedure, method, or equipment which is used only within the studios and is not of sufficient outside interest to be proposed as an American Standard. For example, the Council has established Research Council Practices on certain types of electrical plugs used on stages in the interest of interchangeability from one studio to another, and to simplify the manufacturer's problem. These particular types of plugs are not used elsewhere and, consequently, are not of interest as American Standards.

The Motion Picture Research Council takes an active part in work of the American Standards Association. Its representatives serve on sectional committees dealing with standards for motion pictures, Z22; acoustical measurements and terminology, Z24; sound recording, Z57; and optics, Z58. At the present time, the Council is particularly interested in the standardization of screen illumination, dimensions and speed of magnetic recording mediums, pitch of sound recording negative, laboratory procedures for 16-mm release of 35-mm material, Dubray-Howell perforation, and fused plugs and cables.

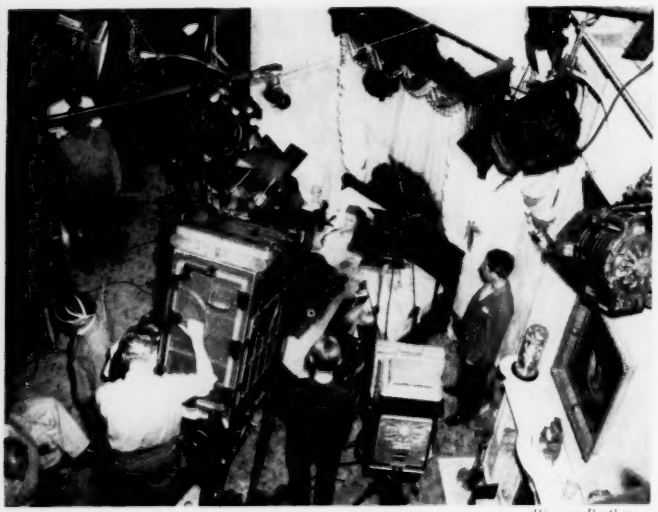
The Motion Picture Research Council is an outgrowth of the technical bureau formed under the Academy of Motion Picture Arts and Sciences shortly after the organization of the Academy in 1927. At that time, the bureau collected and published information on the use of incandescent lamps on sound sets, conducted courses in industrial education, and contributed materially to the solution of many problems encountered in establishing sound in motion pictures.

In 1932, following a reorganization, the Research Council replaced the technical bureau. This Council continued to function under Academy bylaws but was sponsored and financed by the Association of Motion Picture Producers.

Unfortunately, the activities of the Academy Research Council were limited by lack of funds and staff, and by the necessity for operating through committees of technicians volunteering their time. It was obvious, though, that there was a definite need for a properly organized and adequately financed research and development program. In 1947, using the existing Research Council as the nucleus, the new Motion Picture Research Council was established as a nonprofit corporation.

Ten company members comprise the backbone of the organization—Columbia, Goldwyn, Loew's, Paramount, RKO, Republic, Roach, Twentieth Century-Fox, Universal, and Warner Brothers. Wallace V. Wolfe is president; R. A. Klune, vice-president; and W. F. Kelley, secretary-treasurer.

Committees are of three types: permanent committees, special com-



Warner Brothers

Improvement in methods and equipment used in set lighting, set construction, and photography is constantly being sought by committees of the Council.

mittees, and task groups or subcommittees. Permanent committees, appointed by the board, represent each major technical division of motion picture production. There are 15 such permanent committees:

Art Direction	Photographic
Color	Production Managers
Directors of Cinematrography	Set Construction
	Set Grip Equipment
Editorial	Sound
Effects	Standards
Electrical	Subgage Film
Laboratory	Television

These committees are charged with the responsibility of acting in a technological advisory capacity to the board and staff on all activities pertaining to that committee's particular phase of production.

Special committees, also appointed by the board, advise on particular projects not within the scope of any permanent committee.

Task groups, subcommittees of permanent committees, are appointed to act in an advisory capacity on a single phase of a project, and to make recommendations directly to its permanent committee.

Two long-range projects are under way at the present time. One, the set lighting project, is attempting to improve lighting methods and tools so that production crews may perform their jobs with greater flexibility and improved efficiency.

A review of available literature and a survey of present methods and techniques has been completed. This survey included light sources, lamphouses, optical systems, filters, control equipment, power supply, and, most important, the manner in which such equipment is used on the set. At the same time, an investigation has been initiated to determine the possibility of employing new light sources which might be available. This committee is actively following the development of the mercury-cadmium compact light source and the zirconium lamp, and has presented broad operating specifications to designers and manufacturers for the motion picture use of these lamps. A series of production tests, using various types of newly designed lamps, are now in progress.

Set Construction Project In the Survey Stage

The other long-range project, set construction, is also in the survey stage. A survey of present methods and literature is being carried on simultaneously with an investigation into the possibility of adapting products of other industries to the construction of motion picture sets.

Warner Brothers

The establishment of sound in motion pictures has given the Motion Picture Research Council and its predecessors many technical problems to solve.

A number of short-term projects materials and equipment for simulating fog, more efficient wind machines, duplication of color stills for stereopticons, and nonfading dye agents for plaster—are also under consideration.

It is interesting to note the kind of difficulty that the Council has run into in its work. Mr Kelley, the Council's secretary-treasurer, explains one situation in regard to a short-term project now under way.

"One of our short-term projects is the design and construction of a small camera crane. There has been greater and greater need for camera flexibility as production methods have progressed. The camera has advanced from the stationary tripod to the dolly and to the cranes or booms. The dolly is somewhat limited in its use and the large crane unwieldy and expensive to operate. Therefore, there is a need for a crane with the mobility and flexibility of a dolly, but with the camera range and broader application of the large crane. Several small cranes had been developed previously. Metro-Goldwyn-Mayer built, and still have in use, several cranes of intermediate size. Subsequently, Twentieth Century-Fox developed a small, motor-driven crane. The Council's crane is similar, differing mainly in the type of construction and accessories.

"Acting under the direction and advice of our Camera Crane Committee, and taking advantage of the previous knowledge and experience gained in the use of small cranes, a staff engineer designed a crane which was acceptable to all of the studios.

"Normally, we would provide manufacturing firms with performance specifications or a complete design, and they would manufacture and sell directly to the industry. This would complete the Council's project. Equipment required by studios, however, is often so specialized that manufacturers are reluctant to produce the item for sale on the open market. Such was the case with the crane. We were unable to find a firm willing to undertake the manufacture because of the risk involved compared to the possible market for such specialized equipment. The Council, therefore, found it necessary to correlate studio orders and arranged for the manufacture of an initial order of 25."

Safety Standards For Aircraft Operation

Adoption of a set of safety standards for the operation of aircraft on scheduled international flights was reported by the Council of the International Civil Aviation Organization at Montreal. The new operating standards, which will become effective in 1950 unless they are disapproved by a majority of ICAO's members before next May 15, are the sixth set of standards approved.

Standardization To Be Studied At Industrial College of Armed Forces

By Lieutenant Commander Dale E. Fairchild, USN

Instructor, Production Branch
Industrial College of the Armed Forces

STANDARDIZATION is receiving special emphasis in the postwar program of the Industrial College of the Armed Forces, which operates on the highest educational level within the National Military Establishment. The mission of the College is to prepare senior officers and selected civilians for important policy making and economic mobilization assignments in the Armed Forces and Government. This mission dictates that a portion of the curriculum be devoted to a study of the production aspects of mobilizing the national economy. Standardization forms a part of this study and is treated as one of the important factors which will vitally affect any future mobilization.

Three previous studies have been conducted by the College, emphasizing various aspects of standardization in the Armed Forces. The current course is the first directly concerned with industrial standardization and its relation to economic mobilization. The lecture-seminar method of instruction will be used. The entire class will receive general instruction. A student committee will be selected to do special research and prepare a written report to include:

1. A discussion of the principles and objectives of industrial standardization, their application to procurement and production problems of the Armed Forces, and to industrial mobilization;
2. A review of the development of industrial standardization in the United States with special emphasis on its present status and future prospects;
3. A critical analysis and evaluation of current and planned standardization programs of the Armed Forces to determine their adequacy for the effective utilization of industrial standards in any future emergency.

The course as planned could rightfully be labeled a joint Industry-Armed Forces educational effort. The scope was drafted with the advice and assistance of outstanding representatives of industry and standardizing organizations. An outstanding authority from industry will lecture to the class. A manager of the Standards Department of a large corporation and representatives of organizations such as the American Standards Association, the American Society for Testing Materials, and the American Institute of Architects will assist in seminars.

Standardization is also included as a part of the condensed version of the regular course, which is presented in principal industrial centers by the Reserve Instruction Branch of the College. The course is attended by selected industrial executives, National Guard and reserve officers of the Armed Forces, educators, and other prominent citizens.

Quarterly Journal on Standards Published

THE first issue of the new quarterly journal, *Standards World*, came off the press late in December. Published as a private venture, the journal has S. P. Kaidanovsky, nationally known authority on standardization, as its editor, and Meyer Hanson as managing editor. As a former member of the Consumer Goods Committee, and alternate member of the Standards Council of the American Standards Association, Mr Kaidanovsky is well known to members of ASA. He is chief of the Research and Technical Services Division, Standards Branch, Bureau of Federal Supply, U. S. Treasury Department, is Technical Consultant to the Federal Specifications Board, and is a former Consultant to the Department of the Navy.

The purpose of the new journal is defined as "To communicate coordinated information about standards activities, to serve as an independent vehicle for the newest thoughts and ideas on standards, to chronicle the limitless aspects of standardization and its philosophy, to be both its history and its encyclopedia."

The need for such a service has assumed special importance recently, the editors explain, because of the great strides made within the past few years by standardization and the growing recognition of its standing in the professional and industrial world. The editors state their viewpoint as follows:

"Standardization today has reached factual and professional level; crystallized and significant, it has taken its place in the orbit of other sciences."

In its first issue *Standards World* indicates the broad scope of its program. Thirteen signed articles on the philosophy and theory of standardization, on standardization programs in different industries, and standardization work in other countries from the principal features.

A section of reviews describes important publications in the field of standardization.

Sketches of important personalities in standardization work; and a series of "Standardscopes" of interesting news items complete the book.

An Editorial Advisory Board, made up of specialists in standardization and related fields, will give the advantage of their experience and viewpoint to the new publication. Among those from the United States is Dr P. G. Agnew, Consultant to the American Standards Association.

Standards World, Vol. 1, No. 1, Winter 1948. Published at Washington, D. C. Box 7593, Benjamin Franklin Station. Subscription price $7.50 per year.

Case History of a *Quality Standard*

By Carol Willis Moffett

Published originally in the December issue of STORES, *a publication of the National Retail Dry Goods Association*

Mrs Moffett has participated in the development of consumer standards for many years. Among other accomplishments, she was the originator and first author of the Better Buymanship bulletins published by the Household Finance Corporation. In the American Standards Association, Mrs Moffett is a member of the Board of Directors and the Consumers Goods Committee, top advisory and technical committee in ASA's consumer goods work, and chairman of the Committee on Certification and Labeling.

The American Hospital Association is sponsor of the Sectional Committee on Specifications and Standards for Sheets and Sheeting, L4, which developed the American Standard Specifications for Bleached Cotton Bed Sheets and Pillow Cases, L4.1-1948. Copies may be obtained from the American Standards Association, 70 East 45th Street, New York 17, N.Y. at 25 cents each.

AN event of importance to retailers and their customers occurred last month without benefit of fanfare or newspaper headlines. National standards for sheets and pillow cases were approved by a majority of manufacturer, retailer, and consumer-interest groups under the procedures of the American Standards Association. They will be known as American Standard Specifications for Bleached Cotton Bed Sheets and Pillow Cases, L4.1-1948.

Buying organizations and all retailers who stock sheets and pillow cases should get copies of these standards immediately. Then they should be used. Retailers can be assured that all the sheets they order will meet a minimum standard of satisfactory quality if they will simply specify on their purchase orders the requirement that the sheets and pillow cases shall meet or exceed the American Standards for the various types. They can get this important information through to their customers by asking manufacturers to attach specification labels to the sheets and pillow cases.

These standards define important quality factors for five types of sheets. They establish minimum breaking strengths for both warp and filling, indicating relative strength and durability of the fabrics; the maximum percent of sizing which may be added to the fabrics of the different types; the weight by ounces per square yard, indicating the relative amount of cotton in the fabrics; the number of stitches per inch in the seams and hems. Methods of test and tolerances also are defined. The five types are named according to the combined thread count of warp and filling and the kind of yarn used.

The new American Standards for sheets and pillow cases were arrived at through the regular ASA process by which the parties at interest—makers, distributors, and users—arrive at substantial agreement. The procedure, though voluntary, is never simple. In the case of the sheet standards, it has certainly been the longest one on record. Their development was requested of the American Standards Association 21 years ago by the American Home Economics Association. At that time, 45 persons representing 59 organizations of manufacturers, distributors, and consumers met in conference to consider whether the project was feasible. They agreed without a dissenting voice that it was.

A smaller committee was selected, representing all interests, which was to determine the characteristics of sheets which should be defined, how

Mrs Moffett is shown here talking to Robert A. Seidel, vice-president and comptroller, W. T. Grant Company, chairman of the ASA Consumer Goods Committee, while George G. Sommaripa, in charge of ASA work on consumer standards, listens to plans for future activities.

they were to be defined, how they were to be tested, and how they were to be stated in the standard. Research work was done and within a relatively short time, standards had been formulated.

Then they ran into stormy going. Because sheet standards were the first to be undertaken in the consumer goods field through the American Standards Association, fears arose about their effect on competition. These fears, which seem merely quaint now, were very real then. They began to diminish when some manufacturers used specification labels, some of them very much like the standard definitions of sheeting qualities which now have been accepted. These specification labels were the fruit of the cooperation of manufacturers, retailers, and consumers on the sheet standards because each interest got a chance to understand the other's viewpoints better.

Seidel Given Credit for Breaking Deadlock

But for years repeated efforts failed to bring the standards through to general approval by all groups. To Robert A. Seidel, chairman of the Consumer Goods Committee of the American Standards Association, and chairman of the Executive Committee of the National Retail Dry Goods Association, goes the lion's share of credit for breaking the long deadlock. Under his vigorous and skillful leadership, most of the interests involved have agreed to take less or give more than they originally wanted to include in the standards. The final compromise inevitably does not represent the most perfect and complete definition for sheets and pillow cases which might be written. But it does represent voluntary agreement on defining important characteristics.

The new definitions of minimum quality for the different types of sheets and pillow cases will remain unchanged for three years. At the end of that time, like all American Standards, they come up for revision, reaffirmation, or withdrawal. The history of most American Standards is that they are improved after experience in using them. Consumers hope that a specification for shrinkage will be included in any revision, as one improvement.

It is obvious now to many more people that these standards defining minimum quality will be helpful, rather than hurtful to retailers and manufacturers who promote brand names. They are solid ground under statements concerning quality. Any additional values above the minimum requirements of the standards will bring distinction. Advertising claims can be more convincing. Manufacturers and retailers will be relieved of unfair price competition from products falling below these standards. Retailers can be assured of the minimum quality of the sheets and pillow cases they stock merely by requiring when they place their orders that the goods meet or exceed the minimum American Standards which the majority of sheeting manufacturers and interested consumer and retailer organizations have voted to approve. Those in a position to know state that 25 percent of the sheets on the market now cannot meet the American Standard.

By using these standards as a basis for specifying type and quality of sheeting, store buyers and buying organizations will be able to enjoy the same advantages industrial and governmental purchasing agents have. These large-scale buyers regularly base procurement on specifications. A large body of literature proves the success of this method in savings of time, trouble, and money. As the development of consumer goods standards progresses, and retailers become familiar with their advantages, these standards can be expected to lower distribution costs and increase customer satisfactions. Retailers will become in fact purchasing agents for their customers and not merely vendors for manufacturers.

Three Sources of Information Available to the Customer

But the purchasing agent for the home and family has only three sources of information about the goods on the counter when she shops, unless she relies on the limited help in evaluating goods found in such consumer testing agencies as Consumers' Research and Consumers Union. The three more available sources of information are advertising, the label on the product, and the salesperson. Facts, in addition to the usual adjectives, are needed in advertising. Sheets and pillow cases should be labeled with the American Standard specifications for the type, so customers will know what is included in the standard. Sales personnel will have less difficulty in answering consumer questions if the sheets are adequately labeled.

Most consumer leaders consider it even more desirable to have the full specifications on the labels, because the woman who purchases sheets and pillow cases only occasionally cannot be expected to remember them in detail. The specifications also are a great help to consumers in evaluating which type of sheet best suits individual needs at prices they can afford to pay.

These specifications will not be Greek to many consumers. They have been exposed to a great deal of consumer education in the past 15 years, and its importance to them has been reinforced by their experiences during war and inflation. About 30,000 home economists teaching in the public schools, colleges, rural Extension Service, and community groups in 3,200 counties of this nation have been emphasizing the economic importance to the family of intelligent buymanship. In addition, many business and social science courses in our schools include some consumer education. A study unit on standards and labels, published by the Secondary School Principals Association under a grant from the National Better Business Bureau, is part of the consumer education material in 25,000 schools. Several pamphlets devoted solely to how to buy sheets have been widely distributed during the past 15 years by other organizations. These pamphlets have stressed the desirability of national sheet standards and of the statement of specifications on labels.

The new American Standards for sheets and pillow cases will be publicized through educators and consumer-interest groups throughout the country. The American Association of University Women, with 80,000 members, and the American Home Economics Association with 25,000 members, will publish articles about the standards in their journals. These two organizations are active in the work of the Consumer Goods Committee of the American Standards Association, and have persisted for 21 years in their efforts to get the sheet standards adopted. The American Federation of Labor also is active in the Consumer Goods Committee. All are making efforts to keep their memberships informed of developments in consumer goods standards. Other media of information for homemakers about the sheet standards will reach a more general audience.

Retailers are busy people and cannot be expected to delve into many sources of information to learn what their customers are thinking as they stand at counters trying to make their choices, or what information they do not find now in retail stores and

would like to have about the goods they need. Few retailers are making use now of the American Standards relating to consumer goods which are available. For example, American Standards for general methods of testing woven textile fabrics make it possible to provide garments with important service qualifications. These could be specified as requirements on purchase orders if they were better known. American Standards for filling materials in bedding and upholstery could be specified for these goods. The American Standards for valid certification are not used by all commercial testing laboratories which give various forms of approval certificates and insignia. Retailers could protect themselves and their customers if they required certifications to meet American Standards before they gave them currency in their advertising and labeling.

Varied Interests Among New Members

Merrill Chase—Town House

W. F. Leonard
Secretary-Treasurer, American Society of Lubrication Engineers

BITUMINOUS coal producers, lubricating engineers, metal window manufacturers, and textile distributors are among the groups which have recently become members of the American Standards Association.

The National Coal Association, oldest of these organizations, is an ASA Member-Body and, as such, has representation on the Standard Council—the top technical body in charge of all ASA work on standardization.

Composed only of bituminous coal operators and their local associations, the NCA's primary function is the presentation and interpretation of the views and needs of the industry to government agencies and the general public. Among its services to its members, the NCA publishes regular bulletins covering association activities and news in the field; reports of orders and proceedings before the Bituminous Coal Division, U. S. Department of the Interior; a traffic and transportation news letter; and supplies engineering and tax advisory services, as well as comprehensive statistical information.

In the work of the ASA, the National Coal Association already has representatives on many of the ASA's committees concerned with mining and accident statistics.

The new Associate Members are the American Society of Lubrication Engineers, the Metal Window Institute, and the Textile Distributors Institute.

The American Society of Lubrication Engineers was organized as a nonprofit corporation in 1944. Because of the wide interest in the over-all subject of lubrication, the membership has grown to more than 1,400 members. Nineteen separate sections now hold monthly technical sessions. The Fourth Annual Convention will meet in New York, April 11 through 13, with a lubrication show held concurrently.

The role of the Society in the standardization of lubricants is not too positive, according to W. F. Leonard, secretary-treasurer. However, it does act as a coordinating influence among petroleum companies, lubrication device manufacturers, and users of lubricants.

The metal window industry was the first industry to furnish modular-sized products, reports George Hingston, executive secretary of the Metal Window Institute. "Starting early in 1944, each company, upon reconverting from war work, scrapped all previous standards and adopted new 'modular' sizes, except for residence casements which adhere to even inch glass sizes. By January 1945, all companies were cataloging the new sizes and all 'stock' sizes were being made accordingly," he says.

In 1949, the Institute hopes to bring about a further reduction of "stock" or "warehouse" sizes, predicated on the production reports of the various manufacturers.

At the present time the Institute acts as a co-sponsor in research to determine heat transference in flat glass, conducted by the American Society of Heating and Ventilating Engineers; and the Industry-Engineered Home program, conducted by the National Retail Lumber Dealers Association. It plans to initiate further studies in daylighting of schools and other institutional buildings, under the auspices of the American Institute of Architects and supervised by the National Bureau of Standards.

Through committee representatives in the ASA, the Institute cooperates in work on project A62, Coordination of Dimensions of Building Materials and Equipment. This committee has developed draft standards for certain types of steel windows which have been available to the construction industry on a trial basis for over two years.

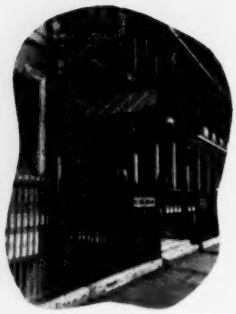
Established in 1938, present membership of the Textile Distributors Institute consists of 150 firms engaged in textile converting. Among the many activities with which TDI is concerned is the issuance of current bulletins and the transmission of information on such subjects as trade practice and business ethics.

In the work of the ASA, the Textile Distributors Institute cooperates in the project on Textile Test Methods, L14.

Underwood & Underwood, Washington, D. C.

John W. Battle
Executive Vice-President, National Coal Association

How British Certification Works



Adequate control during production is essential to assure proper use of certification marks, BSI declares; grants license to use BSI mark only when there is a satisfactory system of statistical quality control; finds use of marks are of special help to the retail buyer.

This second article about the work of the British Standards Institution describes the program carried out by the BSI for certifying products meeting the requirements of British Standards. It tells how the Institution works with the various industries to permit the use of its certification marks and how it helps to provide methods for testing products in the manufacturers' plants to check on continued compliance. This article, and the earlier one describing the general program and viewpoint of the BSI, published in the January issue, were prepared following interviews with Mr Percy Good, director of the British Standards Institution.

STANDARDIZATION has so far been mainly in the field where large quantities of a product are purchased for further processing or for use by important service agencies, such as railways, post offices, and hospitals.

Contracts for the supply of material to be in accordance with a British Standard generally include requests for supervision of tests or for tests by an independent authority. This method often causes delays in the production plant where material has to be held up awaiting inspection. In the case of medium-sized orders, sending inspectors to the production plant represents an appreciable added cost.

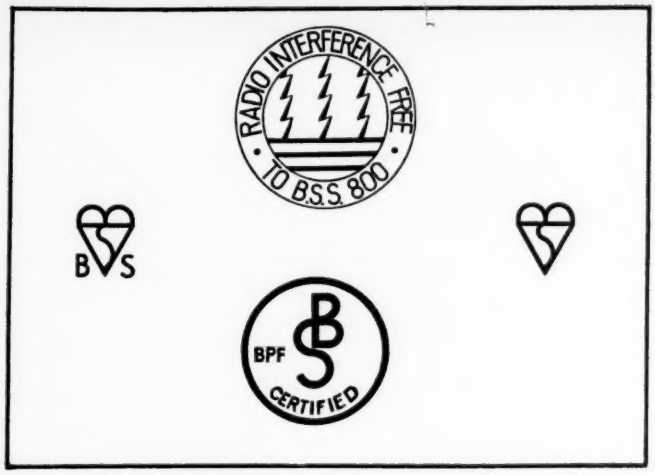
In an endeavor to overcome this difficulty, the British Standards Institution, shortly after its foundation, registered a mark which could be put on material by the makers as a gurantee of conformity. This did not prove satisfactory, as there was no effective independent control exercised at the works, and when a large production batch had been distributed to many centers of use it was often difficult to secure adequate evidence of nonconformity or to impose corrections.

The problem was studied for a considerable time, and after amendments had been secured to the Trade Marks Acts to provide for the use of certification marks under control, it was possible to make progress.

The British Standards Institution has taken the view that it is essential in the development of certification marking to provide adequate control to secure that the marks are properly used. It holds the view that this control must be exercised at the production end. A license to use a BSI mark is only granted when there is in operation a satisfactory system of statistical quality control. In order to assist in this direction the BSI published, in 1935, British Stand-

Ack Ware Ltd.

The library of the British Standards Institution, where standards and literature about standards from all over the world can be consulted.



Important certification marks owned by BSI

Left and right: Two versions of the "kite" mark registered for general use in all classes, not only in the United Kingdom but also in Argentina.

Center, above: The "Radio-Interference-Free" mark registered for electrical apparatus capable of causing radio interference.

Center, below: The "Plastics Mark" registered in classes relating to plastics and articles made of plastics, administered in collaboration with the British Plastics Federation.

ard No. 600 as a guide to producers in introducing into their works this method of quality control.

While the use of certification marks is of value to the large purchaser, it is of still greater value in the case of goods purchased in small quantities on the retail market, and while, at present, there are only a few British Standards where this applies, there are likely to be many more in the future.

In the electrical equipment industry, manufacturers consider it a commercial advantage to use certification marks.

A License Required for Use of Certification Mark

A certification program is worked out by the BSI either with a single company or, if there is reason to believe that the industry as a whole has sufficient interest in it, a scheme of certification is worked out with the association in that field. The certification mark, which is covered by the Trade Marks Act, can only be used under a license issued by the BSI. Such a license is issued after a contract has been signed in which the manufacturer agrees to carry out a testing program which has been approved by the BSI and that he will pay the expenses involved. A maximum expenditure is agreed upon before the program is started. The BSI believes that it is impossible to maintain effective control of a certification mark through random sampling because so many samples would be needed at such frequent intervals that the cost would be prohibitive. Therefore, the manufacturer is made responsible for regular sampling, for testing his product during production, and for recording the results of the tests. The BSI has the right to check the results of the tests recorded by the manufacturer and to send an inspector into the plant at any time. Preliminary inspections are made before a certification plan is put into operation to determine whether the manufacturer's testing scheme is satisfactory. Inspectors, selected by the BSI, are carefully chosen and are independent of the trade. Two are often used for each certification program—one an expert in the production field, the other an expert in statistical quality control. If the inspectors find that the manufacturer's testing scheme is satisfactory, it is accepted by the BSI. If not, plans are made with the manufacturer to improve it. The BSI attempts to use the testing plan of the manufacturer if it is at all possible.

The administration of the certification plan is handled by a Mark Committee, with subcommittees dealing with different branches of industry. There is, for example, a subcommittee for the plastics industry and one for electrical appliances that cause radio interference, for upholstery filling, etc. The certification is either administered by the BSI alone or jointly with the trade associations; the latter particularly in those cases where an association has a registered mark of its own which its members alone are entitled to use. In such cases nonmembers of the trade association can apply for licenses for the use of the BSI mark alone.

Several Certification Marks Used by BSI

The BSI owns several certification marks. The mark commonly referred to as the "kite" mark is registered in all classes; the mark "British Standard" is registered in several classes; the mark "BSS 161" is registered in the class relating to electric lamps; the mark referred to as the "Plastics Mark" is registered in the classes relating to plastics and articles made of plastics. This is administered in collaboration with the British Plastics Federation. The mark referred to as the "Radio-Interference-Free" mark is registered in the classes relating to electrical apparatus capable of causing radio interference. In addition, the words "British Standard" have been registered as an ordinary trade mark for use in connection with "printed publications," specifications, codes of practice, etc. The "kite" mark has been registered as a trade mark in Argentina, and the "Plastics Mark" has been registered in several countries.

British Photographic Trades First to Use Unified Thread

First British industries to adopt the new standard thread for nuts and bolts under the recently signed agreement between Britain, Canada, and the United States are the film equipment and photographic trades, it was reported by the *Kinematograph Weekly*. Manufacturers will adopt the unified thread—which has a 60 degree angle—as soon as possible.

The agreement to use a standard thread will assist greatly the export drive—repairs and replacements will be simplified, the *Weekly* said.

Standards Received From Other Countries

MEMBERS of the American Standards Association may borrow copies of any of the following standards recently received from other countries by contacting the ASA Library. Orders may also be sent to the country of origin through the ASA office. The titles of the standards are given here in English, but the documents themselves are in the language of the country from which they were received.

For the convenience of our readers, the standards are listed under their general UDC classifications.

003 Writing

France

Documentary Sheet on Symbols Used in Statistics, Calculus of Probabilities, etc, FD X05-010

Hungary

Symbols for Electric Lighting Industry, MOSz 471

614.8 Prevention of Accidents and Safety Measures

France

Symmetric Lock-Joint for Fire Hydrant Pipes, NF S61-701

Germany

Hose Holding Leather Straps, DIN 14358/59
First Aid Cabinets, DIN 14404
Fire Hose Ties, DIN 14108
Fire Hose Reel, DIN 14109
Fire Hose Nozzle, Type "C", DIN 14040
Fire Hose Nozzle, Type "B", DIN 14050
Fire Extinguisher, Foam Type, DIN 14061
First Aid in Case of Accident Due to Electric Current, DIN 57134
Color Code for Identification of Various Parts of Gas Masks, DIN 3181
Round Screw Thread for Gas Mask Connectors, DIN 3182
Gas Mask Connectors, DIN 3183
Transparent Discs for Gas Masks, DIN 3184

Hungary

Pressure Hoses, MOSz 1079
Four-section Ladder, MOSz 1086
Grease and Dirt Trap in Water Lines, MOSz 1088
Ladders, MOSz 2070

The Netherlands

Material for Fire Brigades, Coupling Nut for Pressure Hoses, N 338
Material for Fire Brigades, Cap and Coupling for Pressure Hoses, N339

Sweden

Fire Hose Nozzle with Cock and 32-Mm Coupling, Assembly and Parts, SMS 1185, -6, -7

United Kingdom

Portable Fire Extinguishers of the Foam Type, Part I, BS 740
Portable Fire Extinguishers of the Water Type (Gas Pressure), BS 1382

615.46 Pharmaceutics. Dressings

Hungary

Adhesive Plaster, MOSz 846
"Express" Plaster, MOSz 847

621.3 Electrical Engineering

Belgium

Special Rules Relative to Electric Toasters, NBN 164
Special Rules Relative to Electric Water Heaters, NBN 166

Finland

Edison Thread, SFS C.X1.1
Threads for Shades and Shade Holders, SFS C.X1.2
Gages for Shade Holder Thread, SFS C.X1.3
Gage for Shade Thread, SFS C.X1.4
Gage Ring for Open Neck of the Shade, SFS C.X1.5
Thread for Nipple, SFS C.X1.6
Suspension Lamp Fixture Assembly, SFS C.X1.21
Suspension Lamp Fixture Details, SFS C.X1.22
Ceiling Fixture Shade Holder, SFS C.X1.23
Workbench Light Fixture, SFS C.X1.24
Hand Lamp, SFS C.X1.25
House Number Light Fixture, Shade Holder, SFS C.X1.26
Table-, Floor-, and Wall-Lamp, SFS C.X1.27
Electric Plug and Receptacle, SFS C.X1.28
Light Fixture Globe, With or Without Neck, SFS C.X1.101
Cone-Shaped Shade With and Without Neck, SFS C.X1.102
Spherical and Cone-Shaped Shades, Screw-Neck Types, SFS C.X1.103
Convex Type Glass for Ceiling Fixture, SFS C.X1.104
Opal Glass Reflector for Outdoor Fixtures, SFS C.X1.105
House-Number Fixture Shade, SFS, C.X1.106
Protective Glass for Hand Lamp, SFS C.X1.107
Opal Glass Shade for Ceiling Fixture, SFS C.X1.108
Reflectors for Table-, Floor- and Wall-Lamp, SFS C.X1.109
Standard Voltages over 100v, SFS C. I. 2

France

Addition to Basic Standard "Rules for the Installation of Rubber Insulated Wires", NF C30, Add 1

Germany

Corrosion Danger of the Bare Neutral Conductor in Three-Wire d-c Installations, DIN 57151
Rules for Electrical Installation for Dredges, Excavators, etc, DIN 57168
Information Leaflet Relative to Special Instructions for Overhead Lines, DIN 57214
Cable Sockets and Terminals, DIN 46227
Hand Wheel for Switch Gear, DIN 46056
Safety Rules for Protection of Gas- and Water-Pipes from Damages Due to Current of d-c Electric Locomotive Using the Rail as Conductor, DIN 57150
Battery Operated Railless Trains, Wiring and Fuses, DIN 43560
Switch Cable of the Long Distance Alarm, DIN 57813
Flexible Conductor for Long Distance Alarm, DIN 57817
Paper Capacitors 160v to 500v for Telecommunications, DIN 41157
General Rules for Long Distance Alarm Equipment, DIN 57804
Insulated Wires and Cords for Long Distance Alarms, DIN 57812
Cords for Long Distance Alarms, DIN 57814
Protection of Long Distance Alarm Installation, DIN 57820
Paper Capacitors 160v and 350v for Telecommunication, DIN 41154
Heavy Current Capacitors for Telecommunication, DIN 48501
Insulators for Brushes and Brushholders, DIN 43053
Brushholders, details, DIN 43054
Rules for Explosion-proof Equipment of Trackless Electric Train Operated by Accumulators, DIN 57172
Installation of Electric Fences, DIN 57131
General Consideration Relative Electric Installations in Buildings, DIN 57125
Installation of Electric Fences, DIN 57131
Rules for Electric Installation in Mines, DIN 57118
Electric Installation in Places Dangerous from Explosion Viewpoint, DIN 57165, U
Rules for Construction and Testing of Installation Material for Service up to 750v Nominal

Sweden

Standard Types of Commutator and Slip-ring Brushes, SEN 34
Color Code for Identification of Conductors on a Switchboard, SEN 40

United Kingdom

Graphical Symbols for Telecommunications, BS 530

Uruguay

Symbol for Electric Installations, UNIT 24-18

621.64 Devices for Conveyance and Storage of Gases and Liquids in General

Argentina

Color Code for Identification of Pipes, IRAM 2507-N10

Czechoslovakia

Cast Iron Pipes and Pipings, CSN 1440

Finland

Flanges for Pipes, Nom Pressure 1 to 100 kg/sq cm, SFS B.VIII.55

Germany

Threaded Journals, DIN 2350
Sliding Lock Gate for Inlet and Outlet Conduits, DIN 6610/11
Gravel Pot, DIN 6613
Double Foot Valve for Outlet Pipe, DIN 6614
Vent Cap, DIN 6615
Lenticular Packing for Flanged Joints for Nominal Pressure for 64 to 320 kg/sq cm

Hungary

Flanges, List of Standard Types, Detail of Attachments, Screw Type Flanges, MOSz 2900 through 2910
Flat Welding Type Flange, NP6, MOSz 2912
Rolled in Type Flanges for NP6 to NP40, MOSz 2915 through 2919
Welding Type Flanges for NP6 to NP64, MOSz 2921 through 2926

Loose Type Flanges for Lapped Joints, MOSz 2941 through 2943, 2951 through 2956, 2961 through 2963

Gaskets for Flanges, MOSz 2971 through 2974

Sweden

Cock with Internal Thread, SMS 1007

Cock with Internal and External Threads, SMS 1008

Cocks with Stuffing Box and External Thread, SMS 1118

Lock Unit for Cocks with Stuffing Box, SMS 1119

Pipe Coupling Used in Dairy Industry, Nom Pressure 6 Atm Assembly and Parts, SMS 1145 through 1149

United Kingdom

Plug-and-socket Gas Connectors for Portable Appliances, BS 570

621.82 Transmission Parts. Shafting. Journals. Bearings. Couplings, etc.

Hungary

Ball and Roller Bearings. General. Definitions, Types, Acceptance, Tolerance, MOSz 2700-2703

Single Row Ball Bearings Series 60, EL and R, 62, 63, 64, MOSz 2710-2714

Double Row Ball Bearings Series 32 and 33, MOSz 2717-2718

Single Row Roller Bearings, Series 10, 2, 22, 3, 23 and 4, MOSz, 2720-2726

Self Aligning Double Row Ball Bearings Series 12, 22, 13, 23, 104, MOSz 2730-2734

Self Aligning Double Row Roller Bearings, Series 230, 231, 222, 232, 213, 223, MOSz 2740-2745

Self Aligning Single Row Roller Bearings, Series 202, 203, 204, MOSz 2746-2748

Tapered Roller Bearings Series 302, 322, 303, 313, 323, MOSz 2760-2764

Tapered Roller Bearings Series 302, 322, 303, 313, 323 General Table of Dimensions MOSz 2769

Lock Nuts for Ball and Roller Bearings, MOSz 2770-2772

Single Thrust Bearings, Series 511, 512, 513, 514, MOSz 2781-2784

Double Thrust Bearings, Series 522, 523, 524, MOSz 2786-2789

624 Civil Engineering

Germany

Permissible Loads on Constructions, DIN 1055 sh.3

Lifting and Stay Ropes for Cranes, DIN 4129

Economical Buildings. General Direction for Dimensions of Economical Structures, DIN 4120

624.9 Structural Engineering

Austria

Capital Building Construction With Ready-made Reinforced Concrete Parts, B 4200

669 Metallurgy

France

Aluminum Bars and Shapes—Round, Square, Rectangular, etc, Angles, Channels, Tees, etc. Hot Rolled and Cold Rolled, NF A57-312

Aluminum Alloy Tubes—Round, Square, Rectangular, etc, NF A57-512

Aluminum Alloys—Sheets, Strips, Discs, etc, NF A57-602

Germany

Various Shapes for Metal Window Frames. General Classification, DIN 4440

Various Shapes for Metal Window Frames. Series A, B, C, D, E, T, U, V, W, DIN 4441-50

Hungary

Flat Spring Steel. First Amendment, MOSz 286

Ribbed Spring Steel, MOSz 2667

Steel Castings. Guaranteed Quality at High Temperatures, MOSz 2682

Sweden

Various Grades of Tool Steel, SIS 14 17 80 through 14 29 00

United Kingdom

Methods for the Analysis of Steel—Chromium Present in Small Amounts in Carbon and Low-Alloy Steels, BS 1121-part 8

Methods for the Analysis of Steel—Nickel Present in Small Amounts in Carbon and Low-Alloy Steels, BS 1121-part 6

Steel Plate—Sheet and Strip, BS 1449

Alloy Steel Castings for Structural and General Engineering Purposes, BS 1458

Structural Steel, BS 15

Union of Soviet Socialist Republics

Brass Bars Re-melted From Scraps. Classification and Specification, GOST 1020-48

Round Copper Bars, GOST 1535-48

Round Bronze Bars. Assortment and Specifications, GOST 1628-48

Round Brass Bars, GOST 2060-48

Lead. Chemical Test Method, GOST 2076-48

Zinc. Chemical Test Method, GOST 2085-48

Primary Aluminum Ingots. Chemical Test Method, GOST 2530-48

Blanks for Draw-Plates. Standard Types. Classification. Tolerances, GOST 3919-47

Steel Wire, Tinned, for Cable Work, GOST 3920-47

Steel Wire Nets for Use in Flour Mills, GOST 3924-47

Steel Castings. Terminology. Classification of Defects, GOST 4009-48

Welded Steel Pipes from 400 to 1400 Mm in Diameter, GOST 4015-48

Copper-Base Alloys for Artistic Casting. Specification, GOST 4116-48

Sheets and Bands of Heavy Non-ferrous Metals and Alloys. Assortments, GOST 4124-48

Copper-Cadmium Alloy Bars for Commutator Segments, GOST 4134-48

Rails up to 45 Kg Per Running Meter, for Wide-Gage Railroads. Specification, GOST 4224-48

Hot-Rolled Telegraph Wire, GOST 4231-48

677 Textile Industry

Germany

Two-Strand Cotton Thread, DIN 60915

Spindle for Carded Yarn and Vicuna Cloth Manufacture, DIN 64020

Reeds for Hand Looms, DIN 64632

Nomenclature of Work in Spinning Mills, DIN 60916

681 Fine Mechanisms, Clocks, Watches, Instrument Making

Germany

Watchmakers End Stones, DIN 8263

Pressure Gages With Hollow Springs, DIN 8550

Union of Soviet Socialist Republics

Industrial Hand Balances 1; 5; 20 and 100 capacity, GOST 359-48

Densimeter for Sea Water. Specification, GOST 4226-48

Standard Color Scales for Water Comparison (After Forell-Uhle). Specifications, GOST 4266-48

New Company Members of the ASA

Between November 1 and December 31, the following companies became Company Members of the American Standards Association, thereby lending their support to national standards work:

Armstrong Machine Works, Three Rivers, Michigan

Barber-Colman Company, Rockford, Illinois

Boston Manufacturers Mutual Fire Insurance Company, Inc, Boston, Massachusetts

Central Illinois Public Service, Springfield, Illinois

Clearing Machine Corporation, Chicago, Illinois

Consolidated Machine Tool Company, Rochester, New York

Corbin Screw Division of the American Hardware Corporation, New Britain, Connecticut

DeVlieg Machine Company, Detroit, Michigan

East Ohio Gas Company, Cleveland, Ohio

Friden Calculating Machine Company, Inc, San Leandro, California

General Fireproofing Company, Youngstown, Ohio

Grabler Manufacturing Company, Cleveland, Ohio

Hendey Machine Company, Torrington, Connecticut

Krueger-Barnes Corporation, Detroit, Michigan

Laclede Gas Light Company, St. Louis, Missouri

Mattison Machine Works, Rockford, Illinois

Micromatic Hone Corporation, Detroit, Michigan

Mississippi River Fuel Corporation, St Louis, Missouri

Monarch Machine Tool Company, Sidney, Ohio

Natural Gas and Pipe Line Company of America, Chicago, Illinois

National Machinery Company, Tiffin, Ohio

New Britain Machine Company, New Britain, Connecticut

Public Service Company of Colorado, Denver, Colorado

Rivett Lathe and Grinder, Inc, Brighton, Massachusetts

Texas Eastern Transmission, Shreveport, Louisiana

Townsend Company, New Brighton, Pennsylvania

Verson Allsteel Press Company, Chicago, Illinois

Yawman Erbe Manufacturing Company, Rochester, New York

York Corporation, York, Pennsylvania

Young Radiator Company, Racine, Wisconsin

Dorothy S. Washburn of Philadelphia, Pennsylvania, became an Individual Member.

Proposed Standard Terminology for Acoustics Now Out for Year's Trial

By E. Dietze and C. F. Wiebusch

Bell Telephone Laboratories
Co-chairman of the Subcommittee on Acoustical Terminology, Z24A

New material defines terms used in work on ultrasonics, recording and reproducing, underwater sound, general acoustical instruments, and shock and vibration; committee asks comments and suggestions

WORKERS in theoretical and applied acoustics, as well as the buyer and seller of acoustical products and services, now have an opportunity to take part in the development of standard terminology which will help in bringing about a greater understanding among all concerned in the respective fields of acoustics. A proposed American Standard Acoustical Terminology has just been published for a year's trial and study and those interested are invited to make use of the proposed dictionary during the next year and to comment upon their experiences with it.

Technically, the proposed standard is a revision of a previous edition approved in 1942.[1] The new version, however, defines about three times as many terms and includes six new sections reflecting recent scientific developments. These are: Ultrasonics, Recording and Reproducing, Underwater Sound, General Acoustical Instruments, Shock and Vibration, and Units. The sections appearing in the earlier edition—General, Sound Transmission and Propagation, Transmission Systems and Components, Speech and Hearing, Music, and Architectural Acoustics—also contain new material.

The new trial edition of the proposed revision of American Standard Acoustical Terminology was prepared by a sectional committee sponsored by the Acoustical Society of America. Special cooperation in the work was given by the Institute of Radio Engineers, Inc. Copies of the proposed standard can be obtained at $1.00 per copy.

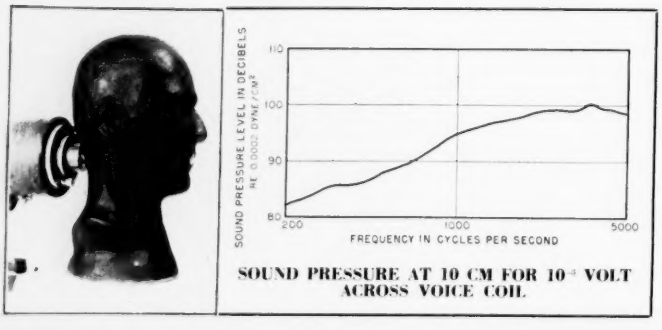
A real accomplishment has been made in reducing the number of existing parallel standards by consolidating the 1942 revision with a revision and expansion of the electroacoustic terminology developed by the Institute of Radio Engineers in 1938. As in previous editions, efforts have been made to keep the definitions consistent with those in standards relating to neighboring fields. This has been done by consultation with other committees under the procedure of the American Standards Association, as well as technical committees of various interested societies.

The revision was officially undertaken in accord with the ASA policy of reviewing its standards periodically. The six years following the previous edition had been very active ones in this field due in large part to wartime development. It became evident immediately that there was a need for modifying some of the existing definitions as well as a need for new terms.

Prepared by experts in acoustics and allied subjects, great care was taken to eliminate possible sources of controversy.

The basic guiding principles used in preparing the glossary were the same as those for the earlier edition, namely: each definition has been made as complete as possible in terms which are to be found in a standard dictionary, and, wherever possible, multiple meanings have been avoided. Exceptions to the first part of this rule have been made where a considerable amount of repetition could be avoided by using words or phrases found elsewhere in the glossary. Exceptions to the second part have been made in those cases where usage has firmly established more than one meaning for a term; in order to avoid confusion, qualifying adjectives have

[1] American Standard Acoustical Terminology, Z24.1-1942.



An "artificial voice" and its "response" curve, which are used in testing microphones enclosed in oxygen masks such as those worn by fliers at high altitudes.

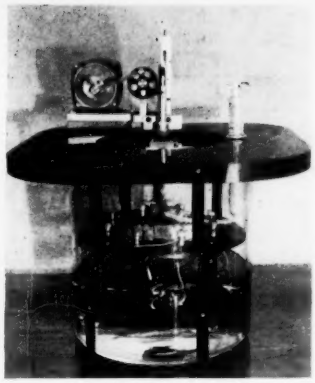
been suggested so that there will generally be available terms having but a single meaning. For example, the word "sound" is commonly used for both the objective and subjective aspects. The proposed standard recommends that when it is desirable to distinguish between these the terms "sound wave" and "sound sensation" be used. Several modifications have also been made in the music section to clarify the distinction between objective and subjective aspects of the phenomena.

Again, for each definition, an effort has been made to present, in addition to accuracy of statement, a clear picture of the meaning to technical readers who are not necessarily specialists in the field of acoustics. As an aid to such readers, many definitions are followed by notes containing background material and discussions.

Finally, terms proposed in the preliminary working editions of the glossary which led to unresolvable controversies among the "experts" have been omitted from the present edition on the grounds that they are not yet ready for standardization. In spite of such editing, instances may be found where a proposed definition does not satisfy the experience and usage of a particular reader. This is the very reason why the standard is being published for trial and study before being issued in final form. However, the committee hopes that when no fundamental objection is involved the reader will let the proposed standard definition prevail in the interest of common understanding and agreement.

Developments During the War Caused Changes in Definitions

Activities during the late war caused modification of several definitions. For instance, the development of high-speed aircraft and the resulting widespread use of "supersonic" for speeds higher than the velocity of sound made it necessary to standardize "supersonic" in this sense, and to use the term "ultrasonic" to indicate sounds having frequencies beyond the upper pitch limit. In another case, the large amount of work on underwater sound with its common use of a pressure of 1 dyne per square centimeter as a reference made it desirable to recognize two references, 0.0002 and 1.0 dyne per square centimeter, as bases for expressing sound pressure on a decibel scale. In this connection, it was felt that the unfortunate use of "one bar" for "one dyne per square centimeter" had diminished to the point where it would now be possible to recognize in acoustics the original meaning of the bar as "one million dynes per square centimeter," and to standardize the term "microbar" as an escape from the linguistic complexities of "dyne per square centimeter." Studies of underwater sound phenomena also showed the need for a broader definition of "reverberation," since in many large bodies of water a very real reverberation was observed which arose from a multitude of minute discontinuities in the medium rather than many reflections from a small number of boundaries, as in the case of a room.



Massachusetts Institute of Technology

"Ultrasonic" apparatus for producing high "sound pressure" in liquids.

Other changes resulting from advances in the art have been made in the fields of articulation and intelligibility rating. The previous standard included several rather specific definitions which visualized testing techniques that are still being used but are no longer the only ones employed. To take care of the situation, the definitions have been generalized so that they apply to a wider variety of tests.

This revision should be of value to workers in both theoretical and applied acoustics and to the buyer and seller of acoustical products and services for it extends the written language to cover the technical problems which they have in common and thus facilitates the exchange of ideas within these groups. It will be of service to manufacturers of radio, television, motion pictures, sound recording, and reproducing equipment; to the armed services; to musicians; to research groups; and to medical groups investigating speech and hearing. It should receive widespread acceptance because it represents the opinions of experts in all fields of acoustics and allied subjects and great care has been taken to eliminate the reasons for controversy.

After incorporating such changes as are indicated by the trial period, it is expected that this standard will not be altered for at least three years. If, at that time, advances in the art indicate the need for a considerable number of new terms or for a revision of the present definition, a committee will again prepare a new tentative standard.

The preparation of the present edition was carried out by small groups who assumed the responsibility for certain sections. These subgroups were drawn from the membership of the original ASA subcommittee on Acoustical Terminology, Z24A, and members of the technical committee on Electro-acoustics of the Institute of Radio Engineers. To facilitate this joint effort, those members of the IRE technical committee who were not already members of the ASA subcommittee were included in the new, enlarged committee.

"What particular benefits may government and the government purchasing agent expect to derive from the use of existing American or other standards? First of all, when any one embodies an American Standard in the call for bids on a particular material, he is assured that he is speaking the language of the industry whose product he seeks because that industry has had a hand in the preparation of the standard. Second, he has a specification or standard prepared by talent which no one company and no government organization could command. It is the handiwork of a group of experts whose companies gave their time to the painstaking and meticulous process of developing a standard to the best of their combined abilities. By seeking to purchase under an American Standard, the purchasing agent adds one more block to the structure of industrial readiness to supply products best adapted for the immediately present need."

—G. F. Hussey, Jr, Secretary of ASA. From an address before the National Institute of Governmental Purchasing, Inc.

Give the Ancients Their Due

By Edmund A. Pratt

Preferred numbers and pipe sizes demonstrate how ancient Romans stumbled on a principle only recently put to use in modern engineering

THAT "there's nothing new under the sun" may be too broad a statement for critical acceptance, but it has its element of truth. Inventions are sometimes rediscovered, and principles previously known but lost with the passage of time are accepted as new ideas.

It is not the purpose of this brief note to disparage the accomplishments of modern engineering, but rather to broaden the base on which they rest by encouraging the reader to pause for a moment and glance backward into some of the earlier stages in the development of the profession. In doing this, we use for a vehicle a subject that is usually considered to be of recent origin: "preferred numbers."

Most of us think of "preferred numbers" as a fairly modern idea with a distinct factory background, and this view was prevalent in the rather extensive discussion devoted to the subject in this country and abroad beginning in the early 1920's. A comprehensive paper entitled "Size Standardization by Preferred Numbers" was prepared by C. F. Hirschfeld and C. H. Berry for the 1922 annual meeting of the American Society of Mechanical Engineers (see *Mechanical Engineering*, December, 1922). That paper appears to have been inspired largely by work previously done in Germany, and out of it arose considerable discussion reported in the technical press. The application of such a series of numbers to civil engineering problems was set forth in "Possibilities of Preferred Numbers in Civil Engineering" by Sidney Wilmot, then Technical Editor of ASCE, published in the February, 1925, issue of *Engineering and Contracting*. Early in the 1930's the subject was taken up on an international level, and eventually (in 1940) the International Standards Association issued a Bulletin containing the series of preferred numbers adopted by some 16 countries. In this country, a table of preferred numbers, recommended to industry for trial in practice, was issued in 1927 by the American Engineering Standards Committee (now the American Standards Association). The definitive American Standard (Z17.1) was adopted in 1936.

But these efforts in this country and in Europe were not the beginning of the development of preferred numbers. Half a century earlier (in 1875) the French Ministry of War set up a "commission on aerial communications." The secretary of the commission was Captain of Engineers Charles Renard, who already had to his credit "several successful glider trials." In the course of his work Renard standardized the sizes of cordage and appurtenances (such as toggles, eyelets, and pulleys) of military balloons, utilizing a geometrical progression of weights per meter of cordage as the basis. He began with cotton cordage and adopted a series containing five intervals between 1 and 10, each size bearing the ratio 1.6 to 1 (approximately) to the preceding size, on the basis of weight per meter. In order to utilize the same series of toggles, eyelets, etc, for hemp cordage, which was smaller in diameter for a given weight, Renard interpolated another series of numbers in his progression, making altogether 10 intervals between 1 and 10, so that the ratio of each number to the preceding number in the series was approximately 1.26 to 1. The result was the "10-series" of preferred numbers, still known as the "série Renard" in France, in which the ratio of each number to the preceding one is equal to $\sqrt[10]{10}$.

Renard never published his work, which was completed in 1879, though he was given credit for it in a publication entitled *Practical Instructions on Military Balloons* issued by the French Ministry of War in 1886. Consequently, this brilliant bit of simplification and rationalization went almost unnoticed, at least on this side of the Atlantic, until about the time—nearly 50 years later—interest was reawakened here and elsewhere in the decade of the 1920's. There are other instances of the use of a geometrical progression as the basis of a series of sizes, though not

Pipe fittings for connections to Roman aqueducts and reservoirs closely followed the geometrical progression of sizes now used in preferred numbers series.

being based on a root of the number 10 the numerals lack the property of repetition possessed by the Renard series.

With this brief introduction to the art of rediscovery, but still keeping to the subject of preferred numbers, let us go farther back—a long way back this time—to an era in which the engineering profession lacked what to us are some of the commonest facilities in daily use. Consider the time, more than a thousand years before the invention of decimal fractions, when, for example, the number 3.65 (simple enough to us!) had to be written: "3 plus $\frac{7}{12}$ plus $\frac{1}{24}$ plus $\frac{1}{48}$." That a series of sizes arranged in an order corresponding to our modern concept of "preferred numbers" based on a root of 10 could be developed under the handicap of such a system of numeration elicits at least a gesture of respect for those who accomplished it. But it was done, nevertheless.

Frontinus Gave Data on Pipe Sizes Used in First Century A.D.

In Clemens Herschel's scholarly translation of Frontinus' book on the water supply of ancient Rome are data from which we can construct a table of sizes of pipe fittings in use for connections to aqueducts and reservoirs at the time Frontinus wrote (about 97 A.D.). Note the *in use:* Frontinus tells us that some of the sizes he lists were "not in use." It may be assumed that the sizes remaining in use were those which experience had shown were appropriate for the needs of water supply engineering as practiced in Rome in the first century of the Christian era. How closely these size gradations conform to those employed at the present time is shown in Fig. 1.

Frontinus tells us, moreover, that two systems were in use for designating pipe sizes: one for pipes up to the "20-pipe" size (about 3.66 in. diameter); the other for larger sizes. The system for small sizes had unequal increments of capacity between sizes; the larger ones stepped up in equal increments of sectional area. The whole range covered pipes from $\frac{29}{32}$ in. to about 9 in. diameter. Up to the "20-pipe" size pipes were numbered according to their inside diameters in quarter-digits (the digit was $\frac{1}{16}$ of a Roman foot, or about $\frac{5}{8}$ of an inch in our measure). Thus the 5-pipe was 5 quarter-digits (i.e. $1\frac{1}{4}$ digits) in diameter, and the 20-pipe was 20 quarter-digits (5 digits). Above the 20-pipe the numbers represented the pipe area in square digits. It so happened that in the case of the 20-pipe the "20" represented both the diameter in quarter-digits and the area in square digits (approximately), so this was a suitable point of transition from one system to the other.

Pipe capacities were measured in *quinariae,* the quinaria being equal to the capacity of a pipe 5 quarter-digits in diameter (hence its name, according to Frontinus). This was the base size; other sizes were related to it in such intervals as to give a suitable range of capacities to meet the practical needs of the situation: *Therein lies our present interest in the matter.* The pipe numbers, capacity in quinaria and increment of capacity, and the diameter in digits and in inches are shown in Table I, together with the modern equivalents. Note how the system changes at the 20-pipe size.

Considered as a mathematical progression this series of capacities makes an interesting display. In the left-hand portion of the accompanying figure the first seven sizes (capacities) have been plotted as a progression on a logarithmic vertical scale. The full line is a straight line fitted to the points by the method of least squares. It is obvious that for all practical purposes the series is a geometrical progression. The slope of the line is such that each step bears to the preceding one the ratio 1.5823 to 1. But observe the broken line paralleling the full one: it represents the 5-series of American Standard preferred numbers, where each number bears to the preceding one the ratio $\sqrt[5]{10}$ to 1, plotted from the same origin as the full line. The identity of the lines is in fact so close that the figure exaggerates the difference: the fifth root of 10 is 1.5849; the figure derived from the slope of the line is 1.5823. It would seem that in the course of time the men responsible for the water supply of ancient Rome had already arrived, some 1,900 years ago, at a very modern conception of a suitable range of pipe sizes!

By way of comparison, a similar graph in the righthand portion of the figure shows the relative sectional areas of American steel pipe (Schedule 40) for approximately the same range of sizes—$\frac{3}{4}$ in. to 3 in., inclusive. In this case a straight line fitted to these seven sizes by the method of least squares has a slope that gives a ratio of 1.540 to 1 for the relation between each size (area) and the preceding one. Here the broken line also represents the 5-series of preferred numbers, plotted from the same origin as the full line. While American pipe sizes in this range clearly follow a geometrical progression, the ratio of increase is not quite as great as the fifth root of 10.

Sizes Too Far Outside Line of Geometrical Progression Discarded

It is interesting to note the tendency to discard sizes which fall too far from the line of geometrical progression. If $3\frac{1}{2}$ in. is taken as the next larger size of American pipe, its position will fall substantially to the right of the line, showing too small an increment in size to fit the progression. But the $3\frac{1}{2}$ in. size of standard steel or wrought iron pipe is infrequently used. So

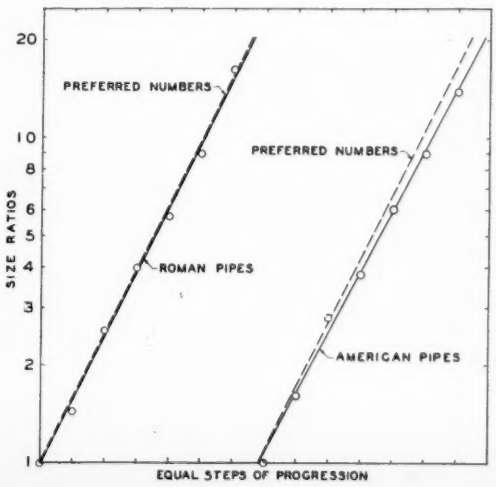


Fig. 1. Standard Pipe Sizes of ancient Romans conform with those in use today. Left-hand unbroken line in graph represents first seven Roman sizes listed in table I, and right-hand line is for standard American sizes from $\frac{3}{4}$ in. to 3 in. Two broken lines, which are plotted from the same basis and represent "5-series" of American Standard preferred numbers, show how closely both systems of pipe sizes correspond with principles of geometrical progression. (See bibliographical reference No. 3 at end of article.)

Diagram—Courtesy *Civil Engineering*

Table 1. Standard pipe sizes of the ancient Romans compared with those in use today

Roman Pipe					Nearest Modern Equivalents			
Pipe Number	Capacity in Quinariae	Increment of Capacity	Diameter in Digits	Diameter in Inches	Diameter in Inches		Relative Sectional Area*	Increment of Area
5	1.00		1.25	0.91	(¾)	0.82	1.00	...
6	1.44	0.44	1.50	1.09	(1)	1.05	1.62	0.62
8	2.56	1.12	2.00	1.45	(1¼)	1.38	2.81	1.19
10	4.00	1.46	2.50	1.81	(1½)	1.61	3.82	1.01
12	5.76	1.76	3.00	2.17	(2)	2.07	6.06	2.24
15	9.00	3.24	3.75	2.72	(2½)	2.47	9.00	2.94
...	...	...	...	...	(3)	3.07	13.88	4.88
20	16.29	7.29	5.00	3.62	(3½)	3.55	18.55	4.67
30	24.43	8.14	6.18	4.48	(4)	4.03	23.88	5.33
40	32.58	8.15	7.13	5.17	(5)	5.05	37.52	13.64
50	40.73	8.15	7.98	5.78	...	...	...	...
...	...	...	...	...	(6)	6.06	54.20	16.68
60	48.87	8.14	8.74	6.34	...	...	...	...
70	57.02	8.15	9.44	6.84	...	...	...	...
80	65.17	8.15	10.09	7.32	...	...	...	...
90	73.31	8.14	10.70	7.76	...	...	...	...
100	81.45	8.14	11.28	8.18	(8)	7.98	93.83	39.63
120	97.75	16.30	12.35	8.95	...	...	...	...
...	...	...	...	...	(10)	10.02	147.95	54.12

* Taking ¾ in. as the base size.

Courtesy *Civil Engineering*

also with the "7-pipe" of the Roman system—its insertion in the picture would make a nasty jog in the line of progression. However, this is one of the sizes of which Frontinus says: "it is not in use."

No less interesting is the fact that the upper limit of the geometrical progression of sizes is about the same for American as for ancient Roman pipes. Above 3 in. or 3½ in., the sizes (areas) of both systems depart from the original geometrical progression. The Roman sizes above the 20-pipe are in exact arithmetical progression. The areas of American pipes from 4 in. to 10 in. diameter again fall in geometrical progression (on another line), but the 3½ in. size does not fit either line. In fact, if the 3½ in. size is discarded on the ground that it is little used, a straight line fitted to the whole series of American sizes for ¾ in. to 10 in. will be found to have a slope of 1.578, and to be almost identical in both slope and origin with the line for the Roman sizes. All of which suggests that there may be something basic about this progression with a ratio that approximates the fifth root of 10.

Who can say how long it took, or what the process involved, in arriving at the rational array of sizes of the pipes through which the ancient Romans received water for domestic use, for the magnificent public baths and fountains? Frontinus tells us merely that they were established by Augustus Caesar and, in another passage, that they were "set down and verified in the records of our most puissant and patriotic emperor" (meaning Trajan). Recall the mathematical procedures in use and picture yourself as an engineer of those distant days—no slide rule, no logarithms; no decimal fractions! GIVE THE ANCIENTS THEIR DUE.

NOTE: In these days when modular design and coordination come in for so much favorable discussion it is worth noting that the water pipe fixtures discussed above were known to the Romans as "modules" (Latin *moduli*), and actually served as metering devices on the basis of which water rights were granted.

News in Brief

• • • J. Carlton Ward, Jr. Fairchild Engine and Airplane Corporation, has been elected honorary chairman, and George B. Gelly, Douglas Aircraft Company, chairman of the Export Committee of the Aircraft Industries Association.

• • • Dr Bernard L. Oser, vice-president and director of the Food Research Laboratories, Inc, was re-elected president of the American Council of Commercial Laboratories at the annual meeting of the Council in Washington, D. C. Dr Oser is chairman of the ASA Sectional Committee on Principles Underlying Valid Certification and Labeling of Commodities, Z34.

• • • Arthur S. Johnson has been elected vice-president and manager of the engineering department of the American Mutual Liability Insurance Company. His activities in the ASA as representative for the National Association of Mutual Casualty Companies include membership on the Standards Council, the Board of Review, and the Company Member Conference.

• • • A new laboratory for the study of automotive engine performance has been installed at the National Bureau of Standards. Equipped with completely automatic controls, actual operating conditions may be closely simulated in such a way that tests can be reliably duplicated. While designed primarily for investigations of cylinder wear, the new equipment may also be used in studying the effects of various types of fuels and lubricating oils on pistons, piston rings, bearings, and carburetors. A problem under investigation at the present time is the determination of the amount of sulfur that can be tolerated in gasolines without appreciably increasing wear.

• • • The 1949 edition of the National Building Code, sponsored by the National Board of Fire Underwriters as a standard for fire safe construction, will be off the press shortly. This will be the sixth major revision of the code which has been made to keep it abreast of changing conditions, new techniques, and building materials.

• • • A Commission on Statistical Standards and Organization has been appointed by the American Statistical Association. Its functions are to provide a tribunal to give opinions and make recommendations on controversial issues relating to statistical procedure and presentation of statistical material; to develop a list of minimum standards for published statistical materials; and, upon request from governmental bodies, to review actual or proposed undertakings and make recommendations relative to standards.

ASA STANDARDS ACTIVITIES

Status of Standards as of January 5, 1949

American Standards Approved Since December 2, 1948

Distribution, Power, and Regulating Transformers, and Reactors Other Than Current-Limiting Reactors, C57.12-1949 (Revision of C57.12-1948)

Sponsor: Electrical Standards Committee

Pool Cathode Mercury-Arc Power Converters (AIEE No. 6), C34.1-1949

Sponsor: American Institute of Electrical Engineers

Standard Specifications for Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service, G38.1-1949 (Revision of ASTM A194-1946; ASA G38.1-1948)

Sponsor: American Society for Testing Materials

Accelerated Ageing of Textile Dyes with Sulfur, L14.1-1949

Colorfastness of Textiles to Acids and Alkalies, L14.2-1949

Colorfastness of Wood Textiles to Carbonizing, L14.3-1949

Colorfastness of Silk to Degumming, L14.4-1949

Colorfastness of Textiles to Fulling, L14.5-1949

Colorfastness of Wool Textiles to Mill Washing and Scouring, L14.6-1949

Colorfastness of Silk to Peroxide Bleaching, L14.7-1949

Colorfastness of Textiles to Sea Water, L14.8-1949

Colorfastness of Textiles to Stoving, L14.9-1949

Test for Mercerization, L14.10-1949

Evaluation of Wetting Agents, L14.11-1949

Definition of Terms Relating to Textile Materials (ASTM D 123-47; ASA L14.12-1949)

General Methods of Testing and Tolerances for Cotton Yarn (Tentative) (ASTM D 180-47T; ASA L14.13-1949)

Methods of Testing and Tolerances for Cotton Sewing Threads (ASTM D 204-42; ASA L14.14-1949)

Methods of Test for Osnaburg, Cement Sacks (ASTM D 205-39; ASA L14.15-1949)

Methods of Testing and Tolerances for Woven Tapes (ASTM D 259-44; ASA L14.16-1949)

Methods of Testing and Tolerances for Certain Light and Medium Weight Cotton Fabrics (ASTM D 274-36; ASA L14.17-1949)

Methods of Test for Asbestos Yarns (ASTM D 299-42; ASA L14.18-1949)

Method of Determining Relative Humidity (ASTM D 337-34; ASA L14.19-1949)

Methods of Test for Holland Cloth (ASTM D376-35; ASA L14.20-1949)

Methods of Testing and Tolerances for Woolen Yarns (ASTM D 403-44; ASA L14.21-1949)

Methods of Testing and Tolerances for Worsted Yarns (ASTM D 404-44; ASA L14.22-1949)

General Methods of Testing Cotton Fibers (Tentative) (ASTM D 414-47T; ASA L14.23-1949)

Method of Test for Strength of Rayon Woven Fabric When Wet (ASTM D 415-38; ASA L14.24-1949)

Method of Testing Pile Floor Covering (ASTM D 418-42; ASA L14.25-1949)

Methods of Test for Fineness of Wool (Tentative) (ASTM D 419-47T; ASA L14.26-1949)

Methods of Testing and Tolerances for Certain Carded Cotton Gray Goods (ASTM D 433-39; ASA L14.27-1949)

Methods of Testing and Tolerances for Certain Wool and Part Wool Fabrics (ASTM D 462-44; ASA L14.28-1949)

Methods of Test for Fineness of Wool Tops (Tentative) (ASTM D 472-47T; ASA L14.29-1949)

Methods of Testing and Tolerances for Spun Rayon Yarns and Threads (ASTM D 507-44; ASA L14.30-1949)

Methods of Testing and Tolerances for Yarns Spun from Mixed Fibers (ASTM D 508-43; ASA L14.31-1949)

Method of Test for Fiber Length of Wool (ASTM D 519-40; ASA L14.32-1949)

Methods of Testing Rayon Staple (ASTM D 540-44; ASA L14.33-1949)

Methods of Testing and Tolerances for Single Jute Yarn (ASTM D 541-41; ASA L14.34-1949)

Methods of Testing Woven Asbestos Cloth (ASTM D 577-42; ASA L14.35-1949)

Methods of Testing and Tolerances for Glass Yarn (Tentative) (ASTM D578-47T; ASA L14.36-1949)

Methods of Testing and Tolerances for Woven Glass Fabrics (ASTM D 579-47; ASA L14.37-1949)

Methods of Testing and Tolerances for Woven Glass Tapes (ASTM D 580-47; ASA L14.38-1949)

Methods of Testing and Tolerances for Woven Glass Tubular Sleeving and Braids (ASTM D 581-44; ASA L14.39-1949)

Method of Test for Hard Scoured Wool in Wool in the Grease (Laboratory Scale Operations) (ASTM D 584-47; ASA L14.40-1949)

Methods of Testing Asbestos Tubular Sleeving (ASTM D 628-44; ASA L14.41-1949)

Methods of Testing and Tolerances for Certain Fine Staple Cotton Gray Goods (ASTM D 679-44; ASA L14.42-1949)

Methods for Testing and Tolerances for Certain All-Cotton and Cotton-and-Rayon Fine Fancy Goods (ASTM D 680-44; ASA L14.43-1949)

Methods of Testing and Tolerances for Jute Rove and Plied Yarn for Electrical and Packing Purposes (Tentative) (ASTM D 681-42T; ASA L14.44-1949)

Methods of Testing and Tolerances for Rope (Leaf and Bast Fibers) (ASTM D 738-46; ASA L14.45-1949)

Methods of Testing and Tolerances for Spun, Twisted, or Braided Products Made from Flax, Hemp, Ramie, or Mixtures Thereof (ASTM D 739-46; ASA L14.46-1949)

Method of Test for Compatibility of Glass Yarn with Insulating Varnish (Tentative) (ASTM D 886-46T; ASA L14.47-1949)

Recommended Practice for a Universal System of Yarn Numbering (ASTM D 861-47; ASA L14.48-1949)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

Allowable Concentration of Methyl Chloride, Z37.18-1949

Endorsing Sponsor: U. S. Department of Interior, Bureau of Mines

Building Code Requirements for Grandstands, Tents, and Other Places of Outdoor Assembly, Z20.2-1949 (Revision of Z20.2-1946)

Sponsors: National Fire Protection Association; Building Officials Conference of America, Inc

Standards Being Considered for Approval

By the Standards Council—

Specifications for Salt-Water Soap (ASTM D 593-42; K60.13)

Specifications for Liquid Toilet Soap (ASTM D 799-45; K60.14)

Specifications for Olive Oil Chip Soap (Type A, Pure; Type B, Blended) (ASTM D 630-42; K60.15)

Specifications for Palm Oil Chip Soap (Type A, Straight; Type B, Blended) (ASTM D 536-42; ASA K60.16)

Specifications for Modified Soda (Sesquicarbonate Type) (ASTM D 457-39; ASA K60.17)

Specifications for Sodium Metasilicate (ASTM D 537-41; ASA K60.18)

Specifications for Sodium Sesquisilicate (ASTM D 594-41; ASA K60.19)

Specifications for Tetrasodium Pyrophosphate (Anhydrous) (ASTM D 595-45; ASA K60.20)

Methods of Sampling and Chemical Analysis of Special Detergents (ASTM D 501-46; ASA K60.21)

Sponsor: American Society for Testing Materials

Sound Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers (Service Type), Z22.61

Sponsor: Society of Motion Picture Engineers

By the Board of Review—

Markings for Grinding Wheels and Other Bonded Abrasives, B5.17 (Revision of B5.17-1944)

Straight Cut-Off Blades, B5.21

Sponsors: Society of Automotive Engineers; Metal Cutting Tool Institute; National Machine Tool Builders Association; American Society of Mechanical Engineers

Specifications for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves, and Parts for High Temperature Service, G37.1 (Revision of G37.1-1947)

Chip Soap (ASTM D 496-39; ASA K60.1)
Ordinary Bar Soap (ASTM D 497-39; ASA K60.2)
Powdered Soap (ASTM D 498-39; ASA K60.3)
Compound Powdered Soap (Granulated, with Rosin) (ASTM D 691-44; ASA K60.9)
Caustic Soda (ASTM D 456-39; ASA K60.10)
Soda Ash (ASTM D 458-39; ASA K60.11)
Trisodium Phosphate (ASTM D 538-44; ASA K60.12)

Sponsor: American Society for Testing Materials

By the Board of Examination—

Audiometers for General Diagnostic Purposes, Z24.5

Sponsor: Acoustical Society of America

By the Building Code Correlating Comtee—

Building Exits Code, A9.1 (Revision of A9.1-1946)

Sponsor: National Fire Protection Association

By the Consumer Goods Committee—

Determination of Small Amounts of Copper, Manganese and Nickel in Textiles, L14.49
Cotton Goods for Rubber and Pyroxylin Coating, L14.50
Air Permeability of Textile Fabrics, L14.51
Methods of Testing Wool Felt, L16.1 (Revision of L16.1-1945)

Sponsors: American Society for Testing Materials; American Association of Textile Chemists and Colorists

By the Electrical Standards Committee—

Laminated Phenolic Products, C59.16 (Revision of C59.16-1944)
Practice for Machinery and Punching of Laminated Phenolic Plate, C59.17 (Revision of C59.17-1944)

Sponsor: American Society for Testing Materials

Incandescent Lamps for General Service for 115-, 120-, and 125-Volt Circuits, C78.100
Incandescent Lamps for General Service for 230- and 250-Volt Circuits, C78.101
Incandescent Lamps for Train, Locomotive, and Country Home Service, 30-34 and 60-64 Volts, C78.102
Incandescent Lamps for Street Railway Service, C78.103
Incandescent Lamps for Spotlight and Floodlight Service, 115, 120, and 125 Volts, C78.105
Infrared Lamps for 115-125 Volt Service, C78.106
Incandescent Projector and Reflector Spotlight and Floodlight Lamps, 115, 120, and 125 Volts, C78.107
Incandescent Lamps for Street Series Service, C78.109
S-6 Bulb, Candelabra Screw Base, C78.200
C-7 Bulb, Candelabra Screw Base, C78.200
S-11 Bulb, Medium Screw Base, C78.201
S-11 Bulb, Intermediate Screw Base, C78.202
S-14 Bulb, Medium Screw Base, C78.203
A-15 Bulb, Medium Screw Base, C78.204
A-17 Bulb, Medium Screw Base, C78.205
A-15 Bulb, Medium Screw Base, C78.206
T-6½ Bulb, Intermediate Screw Base, C78.207
T-10 Bulb, Medium Screw Base, C78.209
T-10 Reflector Bulb, Medium Screw Base, C78.209
A-19 Bulb, Medium Screw Base, C78.210
A-19 Bulb, Medium Screw Base, C78.211
T-8 Bulb, Medium Screw Base, C78.212
PS-25 Bulb, Three-Contact Medium Screw Base, C78.213
PS-25 Bulb, Three-Contact Mogul Screw Base, C78.214
A-21 Bulb, Medium Screw Base, C78.215
A-21 Bulb, Medium Screw Base, C78.216
A-21 Bulb, Medium Screw Base, C78.217
A-23 Bulb, Medium Screw Base, C78.218
G-30 Bulb, Three-Contact Mogul Screw Base, C78.219
PS-25 Bulb, Medium Screw Base, C78.220
PS-30 Bulb, Medium Screw Base, C78.221
PS-35 Bulb, Mogul Screw Base, C78.223
PS-40 Bulb, Mogul Screw Base, C78.224
PS-52 Bulb, Mogul Screw Base, C78.225
P-25 Bulb, Medium Screw Base, C78.226
G-30 Bulb, Medium Screw Base, C78.233
G-40 Bulb, Mogul Screw Base, C78.234
G-40 Bulb, Mogul Screw Base, C78.235
R-40 Bulb, Medium Skirted Screw Base, C78.236
R-40 Bulb, Medium Screw Base, C78.237
PAR-38 Bulb, Medium Skirted Screw Base, C78.238
PS-25 Bulb, Mogul Screw Base, C78.245
T-64 Bulb, Mogul Bipost Base, C78.248
G-30 Bulb, Medium Skirted Screw Base, C78.249
Miniature Incandescent Lamps, C78.140

Sponsor: Electrical Standards Committee

Schedules of Preferred Ratings for Power Circuit Breakers, C37.6 (Revision of C37.6-1945)

Sponsor: Electrical Standards Committee

Standards Submitted to ASA for Approval

Electrical Indicating Instruments, C39.1 (Revision of C39.1-1938)

Sponsor: Electrical Standards Committee

American Standards Being Considered for Reaffirmation

By the Consumer Goods Committee—

Method of Computing Food Storage Volume and Shelf Area of Automatic Household Refrigerators, B38.1-1944

Sponsors: Bureau of Home Nutrition and Home Economics, U.S. Department of Agriculture; American Society of Refrigerating Engineers

Withdrawal of American War Standards Being Considered

Ceramic Radio Insulating Materials, Class L, C75.1-1943
Steatite Radio Insulators, C75.2-1943
Fixed Mica-Dielectric Capacitors, C75.3-1942
Ceramic Radio Dielectric Materials, Class H, C75.4-1943
External Meter Resistors (Ferrule Terminal Styles), C75.5-1943
Glass-Bonded Mica Radio Insulators, C75.6-1943
Fixed Composition Resistors, C75.7-1943
Glass Radio Insulators, C75.8-1943
Power-Type Wire-Wound Rheostats, C75.9-1944
Wire-Wound Variable Resistors (Low-Operating Temperature), C75.10-1944
Crystal Unit CR-1 ()/AR, C75.11-1944
Fixed Ceramic-Dielectric Capacitors (Temperature-Compensating Type), C75.12-1944
Dynamotors, C75.13-1944
Porcelain Radio Insulators, C75.14-1944
Toggle Switches, C75.15-1944
Fixed Paper Dielectric Capacitors (Hermetically Sealed in Metallic Cases), C75.16-1944
Method of Noise-Testing Fixed Composition Resistors, C75.17-1944

News About Projects

Small Tools and Machine Tool Elements, B5—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers; Metal Cutting Tool Institute

Nine subcommittees and the full sectional committee held meetings in December during the annual meeting of the American Society of Mechanical Engineers. The subcommittees, some of which have already completed new editions of standards, covered milling cutters, single point tools, punch press tools, T-slots, tool life tests, designation and working ranges of small tools, splines and splined shafts, twist drills, and adjustable adapters.

Standardization of Gears, B6—

Sponsors: American Gear Manufacturers Association; American Society of Mechanical Engineers

The subcommittee on Fine Pitch Gears held a meeting in December during the Annual Meeting of the American Society of Mechanical Engineers

Bolt, Nut and Rivet Proportions, B18—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

Work on standards on track bolts and nuts, rivets, and round unslotted head bolts was discussed by subcommittees on these subjects at meetings in December.

Classification and Designation of Surface Qualities, B46—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers

A draft of a proposed standard on Surface Roughness Blocks for Machined Surfaces, prepared by a subcommittee under the chairmanship of H. J. Griffing of the Grinding Machine Division, Norton Company, was submitted for consideration by the full sectional committee at its meeting in December during the annual meeting of the American Society of Mechanical Engineers. These standard blocks are intended for use as a basis of comparison for evaluating surface roughness by those who have to specify, produce, or inspect machined surfaces. Members of the sectional committee have been requested to prepare comments for use in the preparation of the final draft.

Rubber Protective Equipment for Electrical Workers, J6—

Drafts of proposed revisions of American War Standard Specifications for Rubber Insulating Line Hose, J6.1-1945; American War Standard Specifications for Rubber Insulator Hoods, J6.2-1945; American War Standard Specifications for Rubber Insulating Blankets, J6.4-1945; and American War Standard Specifications for Rubber Insulating Sleeves, J6.5-1945; were considered at a meeting of the sectional committee on Rubber Protective Equipment for Electrical Workers, J6, December 15. Detailed changes were agreed to and second drafts of these proposed changes will now be circulated to the sectional committee for approval.

Drawings and Drafting Room Practice, Z14—

Sponsors: American Society of Mechanical Engineers; American Society for Engineering Education

New chairman of this committee is R. F. V. Stanton, vice-president and general manager, American Machine & Foundry Company.

A meeting of the sectional committee, held during the annual meeting of the American Society of Mechanical Engineers, took action toward correlating the work of this committee with that being done by other organizations. The Society of Automotive Engineers, the National Aircraft Standards Committee, and the Munitions Board Standards Agency of the National Military Establishment are being invited to become members of a correlating subcommittee.

The committee also voted to adopt a policy looking toward international coordination of drawing standards, particularly coordination of American Standards with those of the British and Canadians.

Two standards on drawing practice approved by the Munitions Board Standards Agency and now mandatory for use by the Departments of the Army, Navy, and Air Force have been referred to the American Standards Association by the Agency as a means of bringing about greater coordination between the practice of industry and the National Military Establishment. The standards, JAN-STD-1, General Drawing Practice, and JAN-STD-3, Format for Production Drawings, have been referred to the American Society of Mechanical Engineers and the American Society for Engineering Education, co-sponsors of the sectional committee. This is in addition to JAN-STD-2, Drawing Sizes submitted in 1947.

Proposed New Correlating Committee

A recommendation that a general correlating committee be created, having functions and responsibilities similar to those of other correlating committees, is now out to letter ballot of the Standards Council. This action would simplify and streamline the ASA's organization and procedure, relieving the Standards Council of the necessity of executing letter ballots on approval of standards, many of which are of limited interest to the Member-Bodies represented.

In creating such a correlating committee, it has also been recommended that the Board of Examination be discontinued, and its functions relating to certain actions by correlating committees acting as sponsors be transferred to the Committee on Procedure. At the same time, the Board of Examination would be requested to recommend the organizations to be represented on the initial committee, and their periods of service. In the event that the Board of Examination did not believe that all of the projects presently under its jurisdiction should be transferred to the general correlating committee, it would be up to the Board to recommend that new correlating committees be created to handle groups of such projects.

Power Division of Electrical Committee Organizes for Work in New Setup

THE Power Division of the Electrical Standards Committee held its organization meeting December 14, completing the setup in the American Standards Association for work on a rounded national program of electrical standardization. The new Communications and Electronics Division of the Committee completed its organization in September. The Power Division will have the responsibility for the majority of the work done in the past by the Electrical Standards Committee, since much of its work was in the field of electrical power engineering. Sidney Withington, representing the Association of American Railroads, is chairman of the Division.

The scope of work of the Power Division has been defined as covering "Standards for electrical machinery, apparatus, devices, and materials employed in the production, distribution and utilization of electric power, and regulations for these applications of electricity when recognized as standards."

Each division has responsibility for the systematic planning of the work in its field and general supervision of the various technical projects into which the work is divided. The Electrical Standards Committee as a whole acts on initition of projects, approval of the scope of projects, designation of sponsors, approval of the personnel of sectional committees upon recommendation of one of the Divisions, and recommends to the Board of Review the approval or withdrawal of standards.

Forty-six projects have been assigned to the Power Division, as shown in the list attached. Action was taken at the December 14 meeting on approval of the personnel of several of these committees, and for reorganization of several of the projects:—

Mercury-Arc Rectifiers, C34—

Sponsor: American Institute of Electrical Engineers

The personnel of this committee, reviewed as a preliminary to submittal of a proposed standard for Pool Cathode Mer-

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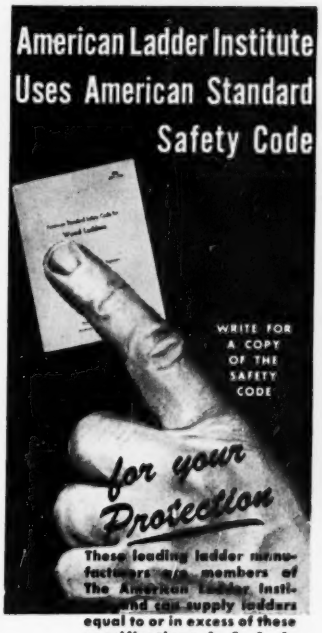

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cury-Arc Power Converters, was approved by the Power Division and recommended to the Electrical Standards Committee.

Power Switchgear, C37—

Sponsor: Electrical Standards Committee

The Power Division recommended that the ESC approve the personnel of this committee.

Definitions of Electrical Terms, C42—

Sponsor: American Institute of Electrical Engineers

The personnel of this committee is not classified in relation to the representation of producers, consumers, and general interest groups, because the work of the committee has been considered to be scientific and therefore does not require balanced representaation. The Power Division recommended that the ESC approve the personnel as classified.

Electric Lamps, C78—

Sponsor: Electrical Standards Committee

The personnel of this committee was recommended to the ESC by the Power Division for approval. An addition to the scope of this committee to include color specifications for electric lamps was recommended to the ESC. This is in addition to the scope that includes "Standards of interchangeability of incandescent lamps and of interchangeability of gaseous conduction lamps, and of the electrical characteristics of operating auxiliaries: and methods of test for such lamps and auxiliaries."

Electric Lamp Bases and Holders, C81—

Sponsor: Electrical Standards Committee

Dr A. Brann, Westinghouse Electric Corporation, who for some time has been acting as chairman of the Sectional Committee on Rolled Threads for Screw Shells of Electric Socket and Lamp Bases, C44, was named chairman of sectional committee C81. The committee was asked to select its own secretary at its organization meeting.

Lamp Ballasts, C82—

E. H. Salter, Electric Testing Laboratories, was named chairman, and the Electrical Testing Laboratories was requested to provide a secretary for the committee.

Magnet Wire—

The Power Division is recommending to the Electrical Standards Committee that the subject of magnet wire be removed from the scope of the Sectional Committee on Electric Wire and Cable, C8, and that a new project be set up with the National Electrical Manufacturers Association as sponsor. It was explained that those concerned with magnet wire are an almost completely separate group from those concerned with other types of wire for electrical purposes.

Conductors and Stranding—

The Power Division is recommending to the ESC that the project on Bare Copper Wire, H4, be given a number under the C (Electrical Engineering) group of projects, and that the scope of this new project be modified to read: "Specifications for metallic conductors made of wire, whether for use in uninsulated form or for subsequent use in making insulated or covered cable."

It was also suggested that project C11 on Aluminum might be merged with this reorganized project on Bare Wire. The American Society for Testing Materials is sponsor for the project on Bare Copper Wire and the American Institute of Electrical Engineers is sponsor for the project on Aluminum.

National Electrical Code—

Sponsor: National Fire Protection Association

National Electrical Safety Code—

Sponsor: National Bureau of Standards

The sponsors of the two electrical codes are being asked to get together to work out a plan for effective coordination of their provisions. The National Bureau of Standards, sponsor for the National Electrical Safety Code, is also being asked to organize the work on Safety Rules for Radio Installations under a separate sectional committee and consider co-sponsorship with the Institute of Radio Engineers or any other organizations concerned. It was also suggested that a sectional committee might be set up for each part of the National Electrical Safety Code when it again comes up for revisions.

JAN standards for Electronic Components—

Some of the 47 Joint Army-Navy Specifications for Electronic Components proposed by the Munitions Board for approval as American Standards have been referred to sectional committees under the jurisdiction of the Power Division. These are as follows:

Assigned to the Sectional Committee on Electric Measuring Instruments, C39 (Sponsor: Electrical Standards Committee)—

JAN-I-6 Instruments, Electrical Measuring Indicating, Basic, Voltmeters, and Ammeters
JAN-S-44 Shock-Testing Mechanism for Electrical Indicating Instruments (2½ and 3½ inch Round, Flush-Mounting, Panel-Type)
JAN-S-61 Shunts, External Ammeter (Light Weight Type)
JAN-P-77 Plastic Materials, Cast, Thermosetting
JAN-P-185 Adapters and Spacers (For Electrical Indicating Instruments)

Assigned to the Sectional Committee on Electrical Insulating Materials in General (Sponsor: American Society for Testing Materials)—

JAN-I-7 Insulators, Glass-Bonded-Mica, Radio
JAN-I-8 Insulators, Steatite, Radio
JAN-I-9 Insulators, Glass, Radio
JAN-I-10 Insulating Materials, Ceramic Radio, Class L
JAN-I-12 Insulating Materials, Ceramic Radio, Dielectric, Class H
JAN-P-13 Plastic-Materials, Laminated Thermosetting Sheets and Plates
JAN-P-14 Plastic-Materials, Molded Thermosetting
JAN-I-21 Insulators, Porcelain, Radio
JAN-P-78 Plastic-Materials, Laminated, Thermosetting (for Name, Graphic, Chart, Instruction and Designating Plates)
JAN-P-79 Plastic-Materials, Laminated, Thermosetting; Rods and Tubes
JAN-P-80 Plastic-Materials Anti-Electrostatic, Clear, Transparent (For Indicating-Instrument Windows)

Two New Commercial Standards Received

Two new Commercial Standards approved recently by the Commodity Standards Division of the National Bureau of Standards have been received by the American Standards Association.

Body Measurements for the Sizing of Apparel for Girls (For the Knit Underwear Industry), CS153-48—

A nationally recognized height-weight system for coordinating body measurements of girls with ready-to-wear size designations, and for determining proper gradations between sizes of garment patterns and specifications, has been made available to producers, distributors, and users through the development of this Commercial Standard.

First circulated to interested groups in April 1946, acceptances representing over 65 percent of production volume of knit underwear within these size classifications have since been received. Printed copies will temporarily be held in abeyance until other affected segments of the apparel industry have had time to indicate the extent of their support.

Enameled Cast-Iron Plumbing Fixtures, CS77-48—

The second edition of this Commercial Standard embodies the requirements, tests, and definitions of the previous edition with certain modifications, and with additions consisting chiefly of a list of standard types and sizes of bathtubs, lavatories, sinks, laundry trays, and urinals made of enameled cast iron. Other additions cover dimensional tolerances, a list of standard colors, and two definitions.

The fixtures listed are those in general demand and more readily available than fixtures produced for a relatively limited or local trade. The latter are not listed. Certain fixtures no longer in demand are recommended for elimination. Essentially unchanged from the previous edition are general requirements on thickness of cast metal, application of enamel coating, and inspection rules. Tests for acid resistance of enamel and warpage of fixtures are also unchanged.

Copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, 25, D. C., for ten cents each.

Use of Traffic Code

A major step toward traffic safety by bringing its traffic laws into closer conformity with the national model code has been taken by the State of Wisconsin. In cooperation with the National Highway Users Conference, the Wisconsin Highway Users Conference presented to state officials a comparison of existing Wisconsin laws with the parallel provisions of the Uniform Vehicle Code of the National Conference on Street and Highway Safety.

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New American Standards Available

ASA Number	Title of Standard	Price
A1.14-1948	Tensile Strength of Hydraulic-Cement Mortars, Method of Test for (ASTM C190-44)	.25
A1.15-1948	Time of Setting of Hydraulic-Cement by the Vicat or Gilmore Needles, Method of Test for (ASTM C191-44)	.25

These methods of test are existing ASTM standards which have now been approved as American Standards. (*Sponsor:* American Society for Testing Materials)

A23.1-1948	School Lighting, Practice for	.50

Although a revision, this new edition has been completely rewritten to incorporate latest advances in lighting techniques. (*Sponsor:* Illuminating Engineering Society)

A37.15-1948	Paving Brick, Specification for (ASTM C7-42; AASHO M40-42 and T31-42)	.25
A37.16-1948	Unit Weight of Aggregate, Method of Test for (ASTM C29-42; AASHO T19-45)	.25
A37.17-1948	Making and Curing Concrete Compression and Flexure Test Specimens in the Field, Method of (ASTM C31-44; AASHO T23-45	.25
A37.20-1948	Securing, Preparing, and Testing Specimens from Hardened Concrete for Compressive and Flexural Strengths, Methods of (ASTM C42-44; AASHO T24-45)	.25
A37.21-1948	Surface Moisture in Fine Aggregate, Method of Test for (ASTM C70-47)	.25
A37.23-1948	Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate, Method of Test for (ASTM C88-46; AASHO T104-46)	.25
A37.24-1948	Compressive Strength of Concrete Using Portions of Beams Broken in Flexure (Modified Cube Method), Method of Test for (ASTM C116-44)	.25
A37.25-1948	Coal and Lignite in Sand, Method of Test for (ASTM C123-44; AASHO T113-45)	.25
A37.26-1948	Flow of Portland-Cement Concrete by Use of the Flow Table, Method of Test for (ASTM C124-39; AASHO T120-42)	.25
A37.27-1948	Weight per Cubic Foot, Yield, and Air Content (Gravimetric) of Concrete, Method of Test for (ASTM C138-44; AASHO T121-45)	.25
A37.28-1948	Clay Lumps in Aggregates, Method of Test for (ASTM C142-39; AASHO T112-42)	.25
A37.29-1948	Slump Test for Consistency of Portland-Cement Concrete, Method of (ASTM C143-39; AASHO T119-42)	.25
A37.31-1948	Measuring Length of Drilled Concrete Cores, Method of (ASTM C174-44)	.25
A37.33-1948	Definitions of Terms Relating to Materials for Roads and Pavements (ASTM D8-46)	.25
A37.34-1948	Materials for Sand-Cement Bed for Brick and Block Pavements, Specifications for (ASTM D58-37)	.25
A37.35-1948	Granite Block for Pavements, Specifications for (ASTM D59-39)	.25
A37.39-1948	Recut Granite Block for Pavements, Specifications for (ASTM D131-39)	.25
A37.40-1948	Granite Block for Durax Pavements, Specifications for (ASTM D132-39)	.25
A37.41-1948	Mineral Filler for Sheet Asphalt and Bituminous Concrete Pavements, Specifications for (ASTM D242-39; AASHO M17-42)	.25
A37.56-1948	Sodium Chloride, Specifications for (ASTM D632-43)	.25

Quality and economy in highway construction can be insured through use of these road and paving materials. (*Sponsors:* American Society for Testing Materials; American Association of State Highway Officials)

B5.7-1948	Circular and Dovetailed Forming Tool Blanks	.75

This revision was undertaken to provide satisfactory blanks for heavy work. Certain sizes have been eliminated and others added. (*Sponsors:* American Society of Mechanical Engineers; Metal Cutting Tool Institute; National Machine Tool Builders' Association; Society of Automotive Engineers)

ASA Number	Title of Standard	Price
D6.1-1948	Manual on Uniform Traffic Control Devices for Streets and Highways	.50

Approved under the Existing Standards Method, this document supersedes the 1935 edition. It includes all of the latest standards for the design, application, and operation of traffic control devices. (*Sponsors:* American Association of State Highway Officials; Institute of Traffic Engineers; National Conference on Street and Highway Safety)

G8.9-1948	Zinc-Coated (Galvanized) Iron or Steel Farm-Field and Railroad Right-of-Way Wire Fencing, Specifications for (ASTM A116-48)	.25
G8.10-1948	Zinc-Coated (Galvanized) Iron or Steel Barred Wire, Specifications for (ASTM A121-48)	.25
G25.1-1948	Grey Iron Castings, Specifications for (ASTM A48-48)	.25

These are revised materials specifications. (*Proprietary Sponsor:* American Society for Testing Materials)

K18.1-1948	Laboratory Sampling and Analysis of Coal and Coke, Methods of (ASTM D271-48)	.25

The procedure for laboratory sampling and analysis of coal and coke has been revised. (*Proprietary Sponsor:* American Society for Testing Materials)

Z10.6-1948	Letter Symbols for Physics	1.00

Uniform letter symbols for physics will simplify the reading of mathematical formulas. (*Sponsors:* American Society of Civil Engineers; American Institute of Electrical Engineers; American Society for Engineering Education; American Society of Mechanical Engineers; American Association for the Advancement of Science)

Z22.29-1948	Theatre Projection Screens, Dimensions for	.25
Z22.60-1948	Theatre Sound Test Film for 35-Millimeter Motion Picture Sound Reproducing Systems	.25
Z22.62-1948	Sound Focusing Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type)	.25
Z22.65-1948	Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Service Type)	.25
Z22.66-1948	Scanning-Beam Uniformity Test Film for 35-Millimeter Motion Picture Sound Reproducers (Laboratory Type)	.25
Z22.67-1948	1000-Cycle Balancing Test Film for 35-Millimeter Motion Picture Sound Reproducers	.25
Z22.69-1948	Sound Records and Scanning Area of Double Width Push-Pull Sound Prints Normal Centerline Type	.25
Z22.70-1948	Sound Records and Scanning Area of Double Width Push-Pull Sound Prints, Offset Centerline Type	.25

Specifications for several important types of film used in testing, dimensions of screens used in theaters, and a type of film used in studio production are included in this group of American Standards for motion pictures. (*Sponsor:* Society of Motion Picture Engineers)

Z32.10-1948	Graphical Symbols for Electron Devices	.60

This is a revision developed to coordinate the various basic symbols for electron devices for use on drawings. (*Sponsors:* American Institute of Electrical Engineers; American Society of Mechanical Engineers)

Z37.6-1948	Allowable Concentration of Manganese	.35

One of a series of American Industrial Hygiene Standards, this revision defines the permissible concentration of manganese dust and fumes in the atmosphere of work places for the protection of the health of workers. (*Sponsor:* U. S. Public Health Service)

Z37.10-1948	Allowable Concentration of Xylene	.35

The purpose of this revised standard is to prescribe the maximum permissible concentration of xylene in the atmosphere of work places for guidance in establishing control procedures for the protection of the health of workers. (*Sponsor:* American Conference of Governmental Industrial Hygienists.)